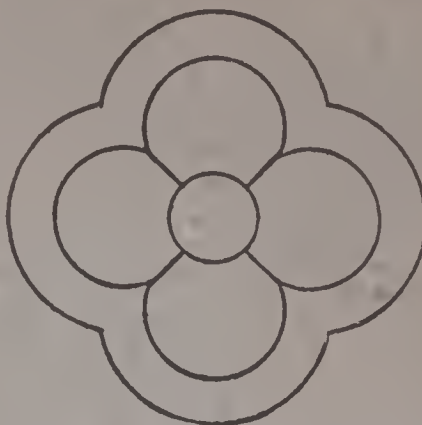
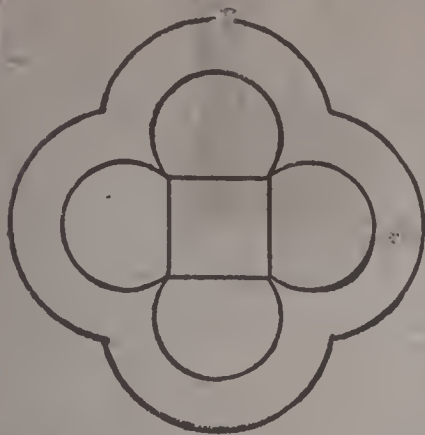


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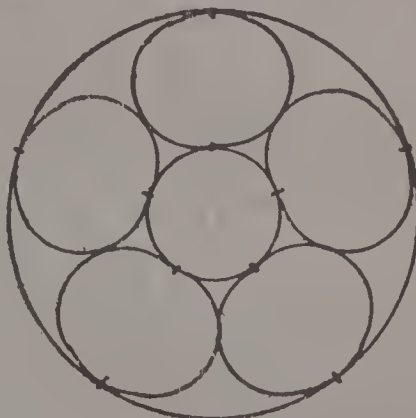


THE
Graded Drawing System

PREPARATORY COURSE OF
DRAWING FOR THE USE OF
PUBLIC SCHOLS ❧ ❧ ❧ ❧ ❧
BY FRANCES WESTFALL ❧



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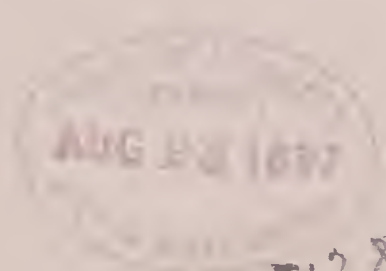
THE
GRADED DRAWING SYSTEM
FIRST BOOK.

PREPARATORY COURSE OF DRAWING

FOR THE USE OF PUBLIC SCHOOLS

BY
FRANCES WESTFALL

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PREFACE.

The art of expressing ideas by means of drawing is a power of great value and usefulness. We learn many things by observation, but how much more could be accomplished if we were taught to observe correctly and express our impressions upon paper by drawing.

In response to the demand for such work in schools this "First Book" of "The Graded Drawing System," was planned and published.

Its purpose is to create a tendency toward close observation; to give a knowledge of drawing; to help teachers to develop useful, busy work; to aid in the study of mathematics and writing, and to prepare pupils for any higher work in drawing.

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GENERAL INSTRUCTIONS.

The subject of drawing, pure and simple, should be considered in the same educational light as other branches of learning.

This weary working over little blocks and cones and pyramids, this rendering of still life, is only a means to a great end. Drawing blocks is our beginning, but what are the drawings of tables, chairs, houses, etc., but so many enlarged and elaborated blocks? Could we represent, correctly, the drawing of a jar or vase without first having studied the ellipses of the plain cylinder, etc.? Therefore let us master the small things first.

Do not hurry in your drawing; neither be too slow, as slowness may make your drawing look heavy and stiff.

Do everything neatly and with precision.

MATERIALS FOR DRAWING.

A soft lead pencil; colored pencils; drill paper; drawing paper; blocks or models belonging to this system; colored paper for cutting and pasting; an eraser.

USE OF MATERIALS.

Do not sharpen your pencil to a fine point, but leave it round so that it will make a soft, grey line.

Do not use an eraser until your drawings are completed.

POSITION.

Sit erect with both feet on the floor and the body slightly forward. Your drawing book or paper should lie straight across your table from left to right.

Hold your hand in the positions given on Plate I. Hold your pencil loosely. You should be about six or ten feet from the object to be drawn or measured, unless other distances are suggested in the lesson under consideration. Sit a little to the left side of your table.

MOVEMENTS.

The free arm movement in drawing is of the whole arm and hand, the action being from the shoulder.

The free arm circular movement is the motion of the hand and arm round and round, the action being from the shoulder.

Draw, then criticise, and draw again the same object in the same position, and note the improvement.

Never use a ruler, as everything should be done free hand.

Do not use measures; allow your mind free action in this as in every other part.

THE GRADED DRAWING SYSTEM.

LESSON I.

ON LINES.

What is a line?

A line is that which has length but neither breadth nor thickness.

What is a straight line?

A straight line is a line which has the same direction throughout, or it is the shortest distance between two points.

May a line slant and still be straight?

Yes. It would then be called an oblique line but it would be straight.

What is a curved line?

A line no portion of which, however short, is straight, or one that changes direction at every point.

What is a right curve?

A line that curves to the right.

What is a left curve?

A line that curves to the left.

What is a vertical line?

A line that is exactly upright, or one that is at right angles to the plane of the horizon.

What is a horizontal line?

A line that is parallel with the horizon.

What is an oblique line?

A slanting line.

DRILL EXERCISE.

HORIZONTAL LINES.

Make two points on your drill paper directly opposite each other horizontally, about five or six inches apart. Connect these points, drawing from left to right.

Practice this exercise several times, then draw lines without using the points.

Always draw horizontal lines from left to right.

Use the correct position of the hand for drawing horizontal lines given on Plate I.

VERTICAL LINES.

Make two points on your drill paper, one directly beneath the other, about five or six inches apart. Draw from the top to the bottom one.

Practice this several times, then draw vertical lines without using the points.

Draw vertical or oblique lines from top to bottom.

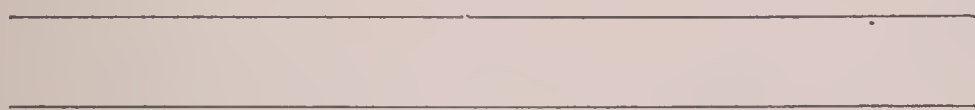
Have the correct position of the hand for drawing vertical or oblique lines given on Plate I.

Also practice drawing horizontal and vertical lines alternately.

In drawing oblique lines make the points in the proper position to indicate the correct slant. Remember to draw them from *top to bottom*.

When are two or more lines said to be parallel?

When they have the same direction throughout their entire length.



What is an angle?

The space between two lines diverging from a common point is called an angle.



LESSON II.

THE SQUARE.

What do you mean by the face of a square?

The flat surface.

How many faces has a square?

Two.

How many edges?

Four.

How many corners?

Four.

Hold the square in front of you at arm's length on a level with your eye, with one face vertically towards you. What do you see?

The face of the square.

How does it look?

Square.

What would the drawing of this view be?

A square.

Hold the square with one edge towards you at arm's length in front of you on a level with your eye. What do you see?

An edge.

What would the drawing of this view be?

A line as long as the edge of the square appears to be.

Should the drawing be a vertical or a horizontal line?

That depends upon the position of the square. If the square is held vertically, the drawing should be a vertical line; but if the edge under consideration is horizontal, the drawing should be a horizontal line.

HOW TO DRAW A SQUARE.

Practice drawing vertical and horizontal lines a short time before beginning to draw a square.

Draw a vertical line of the proper length to represent one vertical edge of your square; draw another vertical line as far to the right of the first as the first line is long, of the same length and exactly opposite to and parallel with the first.

Thus you have made the two vertical edges of a square. Complete the square by connecting the tops, then the bottoms of the vertical lines by horizontal lines.

In drawing a square, lines representing parallel edges are, for convenience, drawn in succession without changing the position of the hand. For example: If a line is drawn to represent the left vertical edge, while the hand is still in the correct position for drawing vertical lines it is more con-

venient to draw the line representing the right vertical edge than to change the position of the hand and draw one horizontal edge, then change back to the former position and draw the other vertical edge.

In representing the vertical edges of the square the left vertical edge should be drawn first. Thus, in comparing the length and direction of the lines for these two edges the hand will not cover the first line drawn. For the same reason draw the line to represent the top horizontal edge first when drawing the horizontal edges.

Draw five views of a square as in Fig. 1.

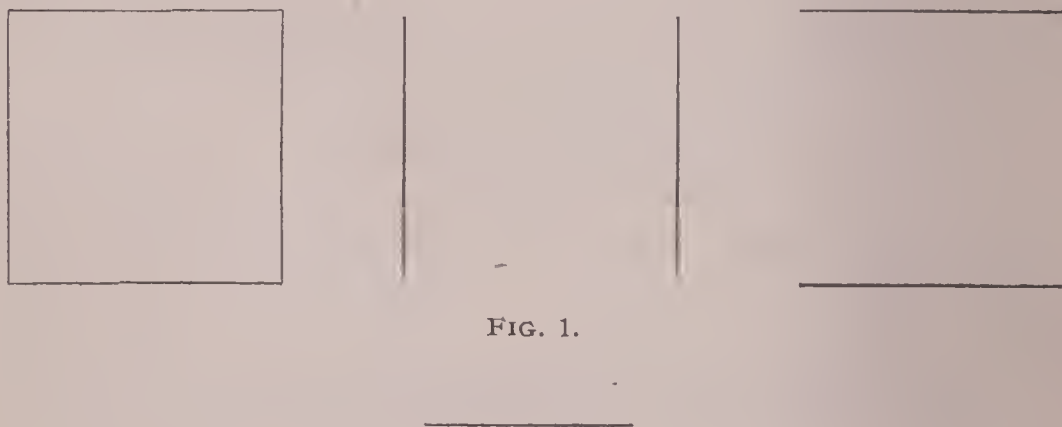


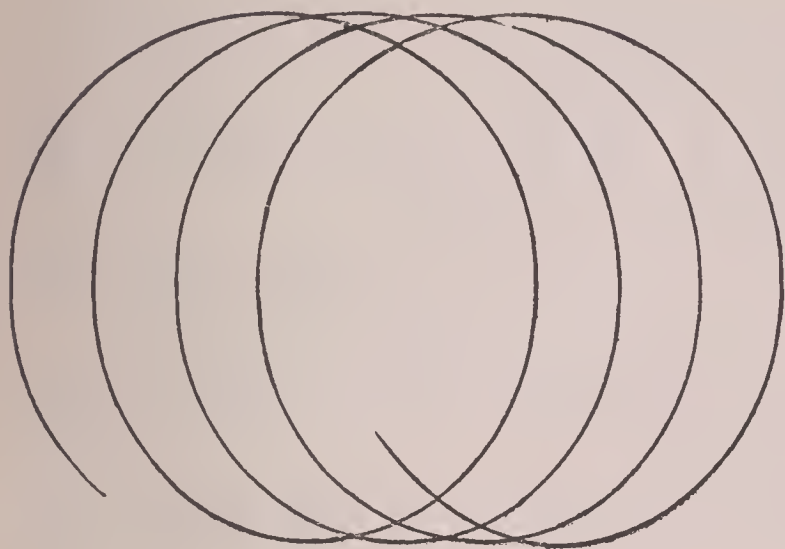
FIG. 1.

LESSON III.

THE CIRCULAR DRILL.

Practice this round or circular drill by making continuous circles, starting from a point and drawing toward the left in an upward curve, proceeding

in a circular direction throughout the entire drill.



Use the free arm circular movement and keep the pencil pointed to the left and the hand in the position for drawing circles, as given on Plate I.

Practice this drill until you

can use the free arm circular movement with ease. Remember that by *free arm* movement is meant the movement of the whole arm from the shoulder.

LESSON IV.

THE FORM OF STUDY AND REPRESENTATION.

We shall now begin the study of objects in two ways, by *touch* and by *sight*.

By *touch*, as grasping, handling, moving, and placing objects on the table.

By *sight*, as by observing the appearance of objects in different positions.

ORDER OF STUDY.

I. Comparison of objects as a whole; as their proportions and how they feel.

II. Comparison of objects *as to surface*; as round, rounding, plane, or curved.

III. Comparison of objects *as to edges*; as stiff or sharp, and soft or broad, straight or curved.

IV. Comparison of objects *as to corners*; as square, sharp, or blunt.

V. Comparison of objects *as to how they move and look*.

WAYS OF EXPRESSING OR REPRESENTING OBJECTS.

I. By *making*; as in clay modeling, paper cutting and pasting, and stick laying.

II. By *drawing* with the free arm movement.

You should carefully study this outline in order to comprehend the purpose of each step.

LESSON V.

COMPARISON OF THE SQUARE AND CIRCLE.

Compare the square and circle according to the rules for comparison of objects in the "Order of Study."

The following is given as an aid in your comparison of different objects:

Take the square in one hand and the circle in the other, closing each hand as nearly as possible. Do their proportions seem about the same? Give the name of the one in your right hand; also, in your left hand.

Compare in your mind their *resemblance* as to feeling; their *size* as to feeling; their *surfaces* as to feeling (being plane, their surfaces will feel smooth); the *edges* as to *feeling*. Have either of them corners?

Will they move if placed upon their flat surfaces on your table?

They will slide if they are pushed.

In comparing different objects you should study them in this way, using the "Order of Study" as a guide. Draw a square.

LESSON VI.

THE CIRCLE.

Hold the circle in front of you at arm's length, on a level with your eye, with the flat surface toward you. What do you see?

A circle.

What would the drawing of this view be?

A circle.

Draw this view.

Hold the circle in front of you at arm's length, on a level with your eye, with one edge toward you. What do you see?

An edge.

What should the drawing of this view be?

A straight line.

Draw this view.

Should it be a vertical or a horizontal line?

That depends upon the position of the circle. If you hold it vertically, the drawing should be a vertical line; but if you hold it horizontally, the drawing should be a horizontal line.

What is the line that bounds the circle called?

The circumference.

Draw a line with school crayon through the center of your circle, terminating at opposite sides. What is this line called?

A diameter.

What is a semi-circle?

It is the half of a circle.

HOW TO DRAW A SEMI-CIRCLE.

Make points on your paper to indicate the dimensions of a semi-circle as in Fig. 1. Make the top one first. Points should be small.

Begin at the bottom one and draw, with the free arm movement, a semi-circle passing through the point to the left and ending at the top one. Keep the pencil and hand in the correct position for drawing circles. As a good drill, trace each semi-circle, that you draw, several times.



FIG. 1.

HOW TO DRAW A CIRCLE.

Make points to indicate the size of a circle as you did in drawing the semi-circle. Fig. 2.

Start toward the left from the lower one and draw, with the free arm movement, a circle passing through the points just made. Have the correct position for the pencil and hand.

If there is a tendency to make the circle pointed, practice drawing the semi-circle and also the circular drill until this is partially overcome.

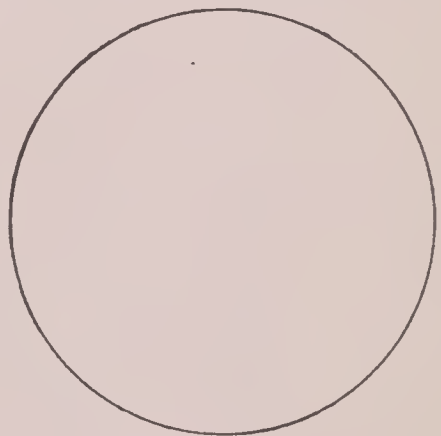


FIG. 2.

Make several circles with the use of the points, then draw some without using the points. Remember to draw, then criticise, and draw again.

Use light lines, and, after you criticise your drawing, strengthen the correct lines and erase the incorrect ones.

LESSON VII.

MEASURING.

Fasten a piece of paper, of about 24x30 inches in dimensions, upon the wall, with the center near the level with your eyes. Draw a long horizontal line on this paper; now draw, on this same paper, a vertical line two or three times longer than the horizontal one.

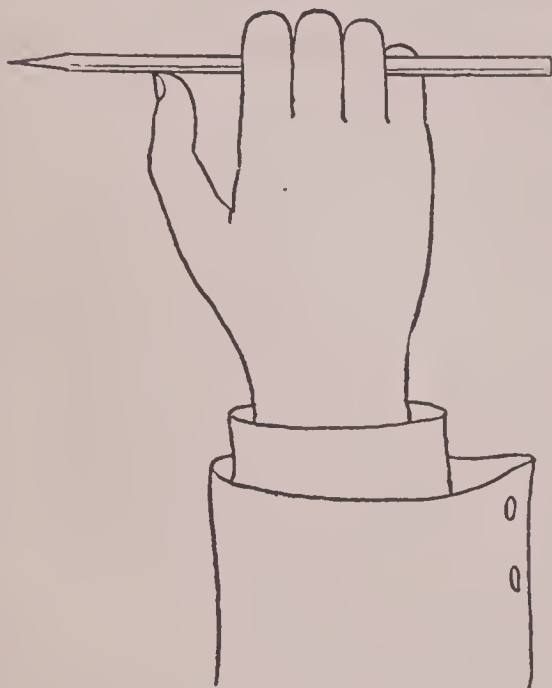


FIG. 1.

Compare the length of these lines as follows: Stand back five or six feet from the paper that is fastened upon the wall. Take your pencil lightly in your fingers, putting your thumb and little finger under the pencil and pressing it up against the other three fingers, as in

Fig 1. Hold your arm at full length, *the slightest bend in your elbow will make a difference in the measurement.* Close one

PLATE I.



eye and hold the pencil with the point opposite the left end of the horizontal line, then run your thumb along the pencil until it is opposite the right end of the line, *still keeping the point of the pencil opposite the left end. Retain this measure* until you have applied it, as many times as it will apply, to the vertical line.

In applying this measure to the vertical line keep your hand in the same position as when measuring the horizontal one, only turn your hand over, so that the pencil will be vertical instead of horizontal. Fig. 2.

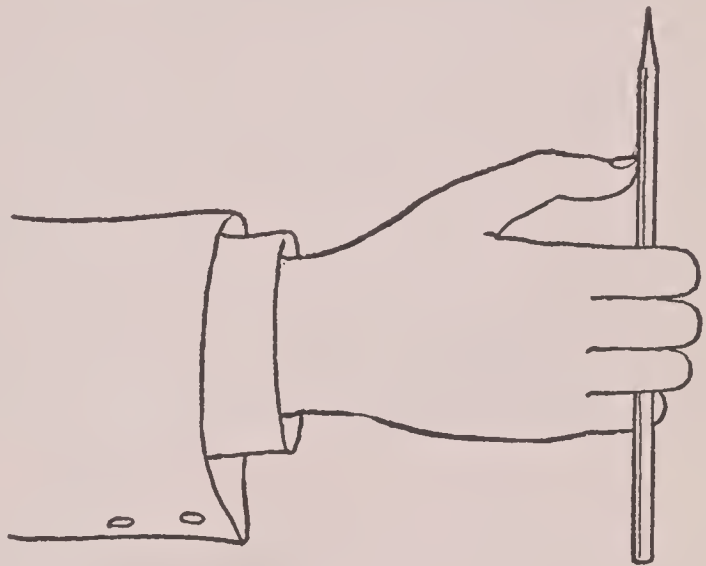


FIG. 2.

All vertical lines and objects are measured with the hand in this position.

Do not drop your hand after finding the measure of the horizontal line until you have applied it to the vertical line if you can possibly avoid it.

You have thus, in this lesson, compared the length of these two lines. Compare the measurements of different objects in this way, as windows, doors, chairs, tables, etc.

Always hold the arm at full length when measuring by this method.

THE PLUMB LINE.

A plumb line is any string with a weight attached to one end of it. This is sometimes used in locating different objects and different parts of the same object.

A point directly beneath any part in an object may be found in this way.

A plumb line gives an absolutely vertical line. The direction of lines to represent edges of objects extending from you may be found by holding your pencil so that it coincides with the edge you are representing, the position of your pencil will indicate the direction of the line.

LESSON VIII.

FORE-SHORTENING.

What is fore-shortening?

Fore-shortening is the *apparent* decrease in the size of an object from *front to back*.

Place a leaf in a vertical position on your table and examine carefully, by comparing the height (or length) and width by measuring at arm's length. You should be about six or ten feet from your leaf.

Now lay the leaf upon your table with one side or one end toward you. Move back about the same distance as before and compare the dimensions of your leaf in this position. Notice the difference in the measurements of the two different positions of the leaf. This is due to what we call fore-shortening.

Study fore-shortening by comparing the square, the circle, or any object in these two positions.

LESSON IX.

BLOCKING.

To “block in” the general outline of an object is to draw the general directions of the outlines.



Fig. 1.



Fig. 2.



Fig. 3.

The drawing is then finished by filling in and rounding out this “blocking” until it represents all

the curves and angles in the object itself. Fig. 1 shows the blocking of a leaf, Fig. 2 shows the same blocking of the same leaf filled out, and Fig. 3 represents the same leaf after the blocking lines are erased.

Do not "block in" laboriously. Indicate simply the main height and width of the object and the directions of the strongest lines by a few straight vigorous strokes. When blocking-in lines are used feebly the value of the work, the strength and the simplicity, is entirely lost.

Block in your drawings, then finish them and erase the blocking lines. Do not use an eraser until your drawing is completed.

Drill often in fore-shortening, but do not try to teach it to primary pupils; just tell them that such a thing is true.

Have the pupils block in the outline wherever it is possible.

LESSON X.

LEAVES.

In selecting leaves to draw choose large, simple ones, avoiding those having indented margins. Lilac, plantain, morning glory, sunflower, etc., are

good examples. Do not use pressed autumn leaves, your work from nature should aim at life, color and beauty.

STUDY OF A LEAF.

Hold your leaf vertically in front of you at arm's length, on a level with your eye. How long does it look compared to the width?

What color is it? Is it the same shade of color on both sides?

Is the edge regular or irregular? By a regular edge is meant one which is not indented. A grape leaf has an irregular edge.

Hold the leaf between you and the light. Does it look darker or lighter than before?

The edge of a leaf cut from paper would be stiff and sharp, but notice the soft pliable edge of your natural leaf; hence, represent this edge in a drawing by a soft, grey line. Draw outline before giving study of veins.

Particular attention should be given to the veins of leaves. Hold your leaf vertically in front of you at arm's length, on a level with your eye. Are the veins heaviest near the edge or the center of the leaf? At that distance can you see them at the edge?

Is there a center vein to which all of the other veins join, or do they extend to the stem or to a

point just above the stem? In leaves where the veins join to a center vein does one from each side connect with this vein at the same place? Notice this particularly.

Lay your leaf on your table with the stem toward you. Place the index finger of each hand



together at the tip of the leaf and trace the outline by passing one finger along on each edge of the leaf and down the stem. Do this until you have the general outline well fixed in your mind, then draw this position of the leaf. First determine the proportions and suggest them by blocking in the outline lightly. Notice carefully the

fore-shortening. Fill in and round out this blocking until your drawing is a good representation of all of the curves and angles of the leaf, then erase the incorrect and blocking lines.



Draw the veins and where one vein joins another allow the pencil to trace the one to which the other one joins a short distance, as in Fig. 3, Lesson IX.

Represent the stem by two lines.

LESSON XI.

STUDY OF THE CUBE.

What is meant by the faces of a cube?

The flat surfaces which bound the cube.

How many faces has a cube?

Six.

How many vertical faces?

Four.

How many horizontal faces?

Two.

What is the shape of each face?

Square.

How many edges has a cube?

Twelve.

How many corners?

Eight.

Hold the cube in front of you at arm's length, on a level with your eye, with one face toward you.

How many faces do you see?

One.

How does it look?

Square.

Place the cube on a table with one corner toward you. How many faces do you see?

Three; the top, right, and left faces.

Does each one look square? If you are in doubt as to whether or not they appear square compare the length and width by measuring at arm's length.

Look directly down upon the cube. How many faces do you see?

One.

Which face do you see?

The top face.

How does it look?

Square.

Would the drawing of this top face be the same as the one for a side face?

Yes; each would be a square if you were looking directly at the face of the cube which you were representing in your drawing.

Should you draw four views of a cube, as front view, right view, left view, top view, etc., would any of the drawings be alike?

Yes; each drawing would be a square.

Draw the four views as in Fig. 1.

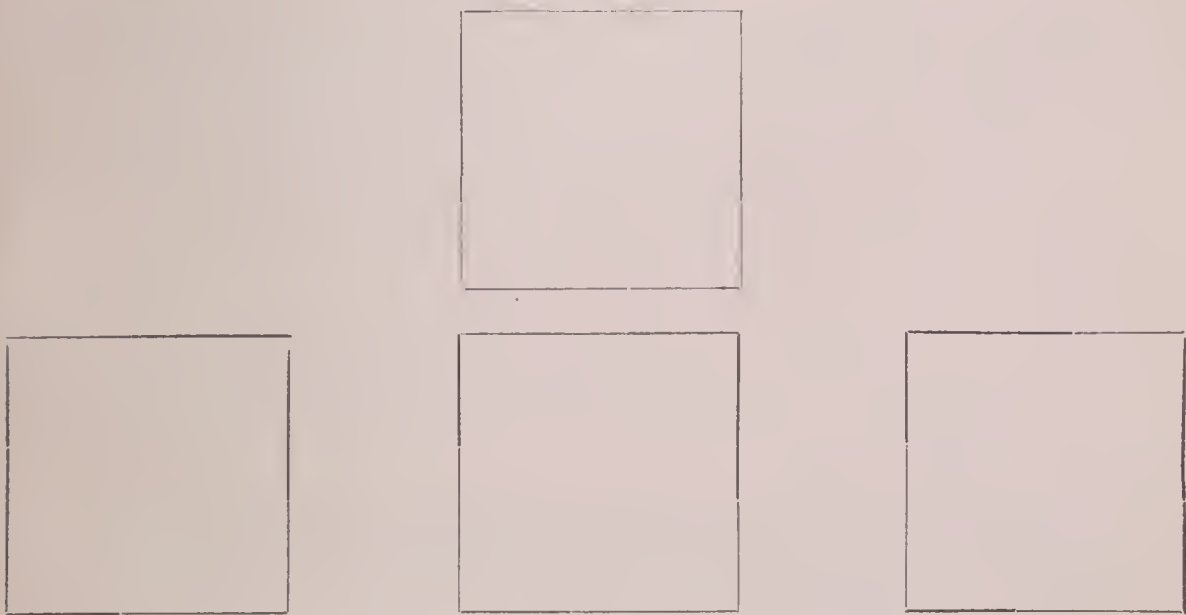


FIG. 1.

LESSON XII.

COMPARISON OF THE CUBE AND SPHERE.

Compare the cube and sphere as you did the square and circle following the "Order of Study" in Lesson IV.

LESSON XIII.

STUDY OF THE SPHERE.

Hold the sphere in front of you at arm's length, on a level with your eye. What do you see?

A curved surface, bounded by a curved line.

What would the drawing of this view be?

A circle.

Turn the sphere around, still holding it in front of you at arm's length, on a level with your eye; what is this view?

A curved surface, bounded by a curved line.

What would the drawing of this view be?

A circle.

Place the sphere on your table and look down upon it; what is this view?

A circle.

Is the drawing of all views of a sphere a circle?
Yes.

Draw four views of a sphere.

What is the difference between a sphere and a circle?

A sphere has width, depth, and thickness; a circle has only width; or, a sphere is a solid and a circle is a plane.

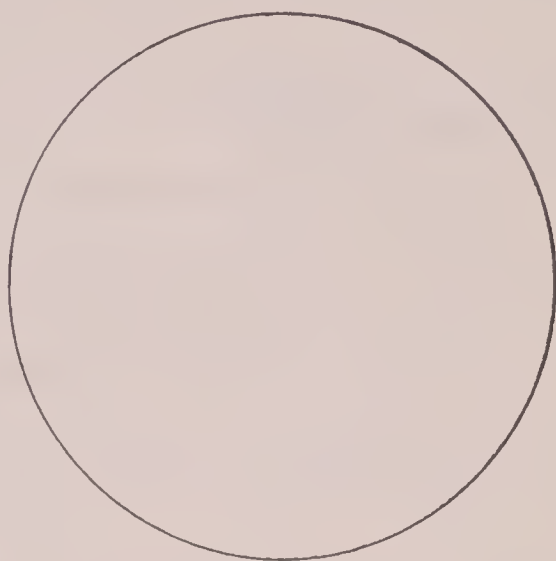


FIG. 1.

Draw a sphere as in Fig. 1, using the solid which you have as a model. Think of some objects which are similar to a sphere, as apple, turnip, pumpkin, etc.

LESSON XIV.

PAPER FOLDING, CUTTING AND PASTING.

On a small, square piece of practice paper draw a vertical line about one inch long. Fold your paper along this line, then on one side draw a semi-circle, drawing from the lower to the upper end of the line just drawn. Correct your drawing until you have made it as nearly perfect as possible,

then cut around the circular edge of your semi-circle, *having your paper still folded*. You will, of course, have a "double" semi-circle; unfold it, and it will be a circle. It is easier to draw and cut a good pattern circle in this way than to draw the whole circle.

Transfer this pattern circle to colored paper by placing it on the *wrong side* of the colored paper and tracing lightly, with a pencil, around the edge of the circle, on the colored paper. Cut this circle,

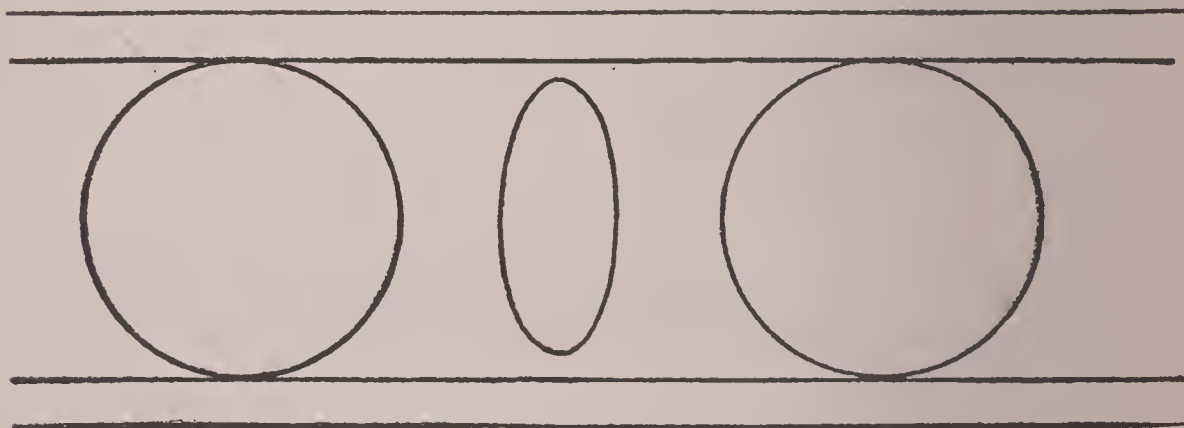


FIG. 1.

which you have just traced, from the colored paper and paste in your drawing book, on a small, white card, or anything on which you desire to paste it.

Circles pasted in a straight horizontal row across a page, having a space of about one-fifth the width of the circles between them and a narrow strip of the colored paper on each side, the same distance from the circles as the circles are apart, makes a very pretty border. Paste in the centres of the circles only.

The strips which are pasted on either side should be about the same width as the space between the circles; they should also extend across the ends so as to complete the border.

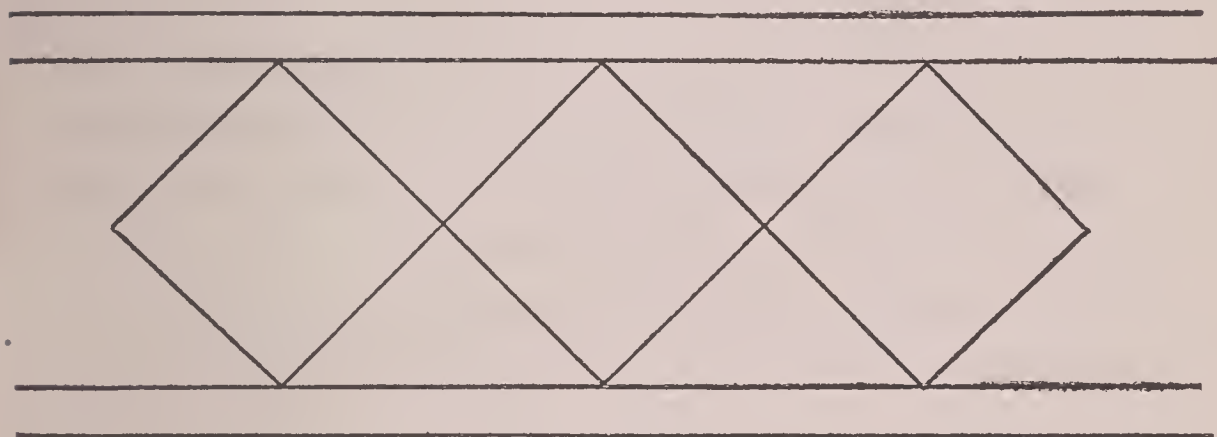


FIG. 2.

Figs. 1 and 2 are some arrangements of borders which will give you an idea of how to combine the drawings of objects we have had in previous lessons.

CLAY MODELING.

GENERAL INSTRUCTIONS ABOUT CLAY.

Clay may be secured from any potter. It will be dry and hard, but may be converted into a suitable state for use, as follows:

Reduce it to as nearly a powder as possible by pounding it, then put it into a two-or-three-gallon jar, or some similar vessel, and cover it with water. Let it stand thus over night, or a day or more; it will absorb most of the water.

Take from near the bottom of the jar that clay which is of the consistency of dough—it should not be stiff—and knead or work it with your hands until it becomes very smooth. This is now ready for use.

You should have a medium sized, smooth board, or a large piece of stiff paper on which to work.

After you have used the clay you can put it back into the water for use again.

The purpose of clay modeling is to develop a knowledge of the forms of objects.

LESSON XV.

HOW TO MODEL A SPHERE FROM CLAY.

Always have the object itself as a model.

Take a small piece of clay, which you have prepared according to the instructions about clay, in the palm of your left hand; then roll and press it with the palm and fingers of the right hand until you have made a good sphere. Use the fingers in clay modeling wherever it is possible.

Cut the sphere, which you have just made, through the centre with a thread and the result will be two hemispheres. A slice cut from the flat side of one of the hemispheres will be a circle.

There are a number of objects that are similar to a sphere which may be represented in clay, as a tea-kettle, apple, round basket, etc.

A tea-kettle is made of clay by flattening two opposite sides of a sphere, then with some pointed object, as a pencil or stick, make a small circle around the top for the lid and put a small circular piece of clay in the centre of the lid. Make a spout of clay, the size it should be according to the proportions of your tea-kettle which you have for your model, and put it on your clay kettle in the proper place. Make a handle the same way and put it on where it should be according to your model. Notice particularly its position and proportions.

An apple or basket is made according to the same principles—that is, by flattening the sphere where it should be, and adding those parts to be added.

From the hemisphere may be made a toad-stool, a bowl, cap, etc.

A cube is modeled by making a sphere, then flattening six opposite sides.

LESSON XVI.

HOW TO DRAW A CUBE BELOW THE EYE WITH
ONE FACE TOWARD THE OBSERVER.

Place the cube on your table in such a position that you can see only one vertical face and the top.

Determine the size of the vertical face of the cube and draw it. Next find by actual measurement at arm's length, how wide the top is from front to back compared to the width of the vertical face. Remember the result of this measurement until you have compared the length of the front and back horizontal edges of the top face of the cube.

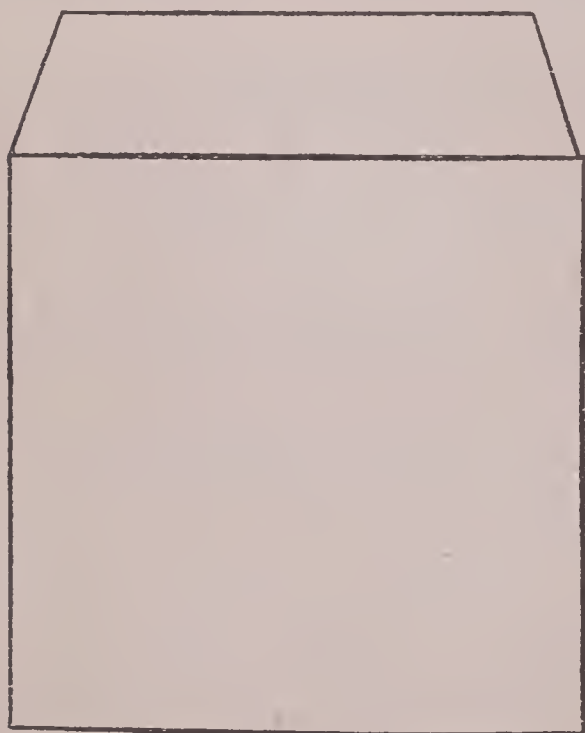


FIG. 1.

I find from my position that the *back edge* of the cube which I am representing appears about one-fifth shorter than the *front edge*. So I draw the horizontal line to represent the back edge accordingly, leaving off half of the fifth from each end.

Draw lines from the front corners of the top of the cube to the ends of the line for the back

edge and thus complete the drawing of a cube as in Fig. 1.

Notice that the lines last drawn converge some, that is, come nearer together as they recede; this is explained later.

Rectangular objects, such as books, boxes, etc., in this position may be drawn in the same manner.

You have thus drawn the appearance of the cube in this position, you may now draw the facts of the same cube in the same position as in Fig. 2.

By the appearance of any part or parts of an object is meant the way in which the observer *sees* that position of the object. By the facts of an object is meant that which the observer *knows* to exist. Hence the necessity of the rule, "Draw what you see, and not what you know to exist," becomes very obvious as we represent the *appearance* and *facts* of the cube in the same position.

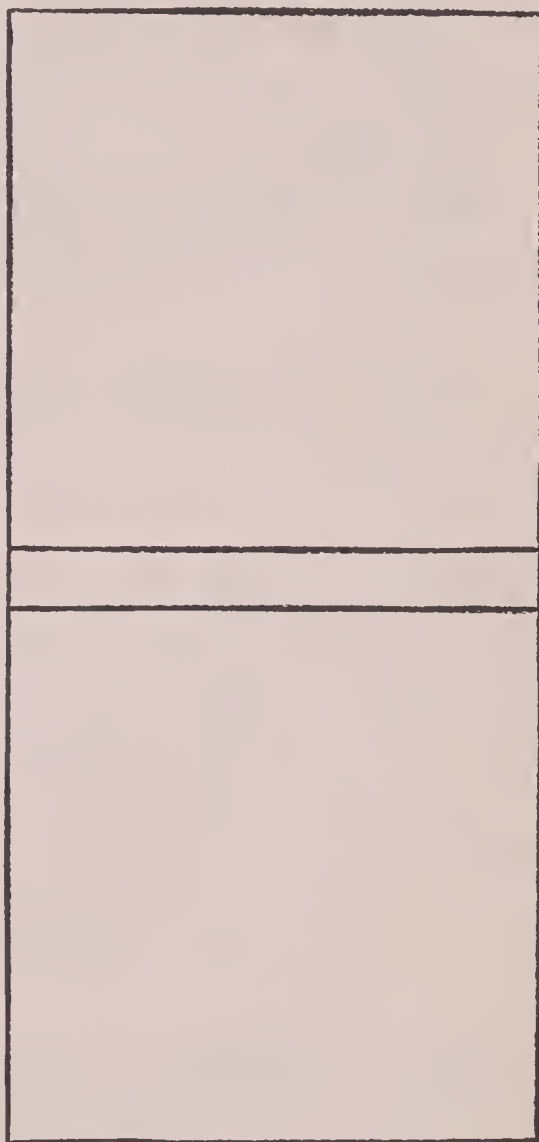


FIG. 2.

In the position in which you have just represented the cube, what do you *know* the vertical face to be?

A square.

What would the drawing of the facts of this face be?

A square.

What do you *know* the top face of this cube to be?

A square.

What would the drawing of the facts of this top face be?

A square.

Thus in Fig. 2 we have a drawing of the facts of a cube below the eye with one face toward the observer. Draw the facts of your cube in the same position in which you have just drawn the appearance.

LESSON XVII.

HOW TO DRAW A CUBE BELOW THE EYE WITH
ONE CORNER TOWARD THE OBSERVER,
AS IN FIG. 1.

Draw a long horizontal line on your table with school crayon; then place the cube with one vertical edge toward you so that the lower front corner will touch the horizontal line. Mark this point *A*.

Make a point on the horizontal line directly opposite the lower back right corner; also one directly opposite the lower back left corner of the cube. Letter these B and C , making these letters on your table. Draw a line on your table from the lower right corner of the cube to B , and one from the lower left corner to C . The upper extremities of these lines, or the place where the lower back corners of the cube touch the table, we shall mark D and E .

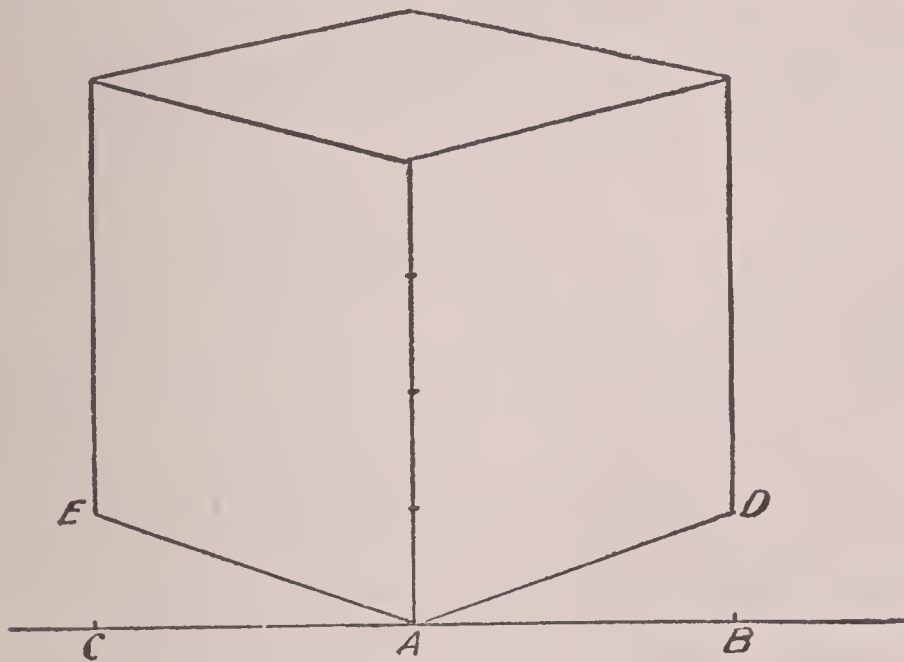


FIG. 1.

Draw a horizontal line on your paper to correspond with the one on your table and make a point on this line to represent A . Draw a vertical line to this point A , as long as it should be, to represent the height of your cube; this vertical line is, then, a drawing of the front vertical edge of the cube. Now compare, by measuring at arm's length, the distance between A and B on your table with the

height of the front edge of the cube and make the point *B* on your paper accordingly. Compare the distance from *D* to *B* on your table with the length of this same edge of the cube and make, on your paper, the point *D* to correspond with the same point on the table. Draw from *A* to *D*. In the same manner find the points *C* and *E* on your paper by comparing the distance from *A* to *C* and from *C* to *E* on your table with the front vertical edge of the cube, then draw from *A* to *E*. From the top of your vertical line draw lines parallel with and the length of the lines *AD* and *AE*, allowing them to converge slightly. Draw the vertical lines connecting the extremities of these lines with *D* and *E*, then from the top of the left vertical line draw a line parallel with *AD*, converging some; also from the top of the right vertical line draw a line parallel with *AE*, converging slightly. The point where the lines just drawn meet will be the back corner of the top of the cube.

The drawing of this view of the cube is difficult and is only made possible by practice. Boxes, books, and all objects of this sort can be drawn in the same manner as the cube.

The horizontal line is used only as an aid in finding the relative position of the lower back corners of the cube which you see determines the slant of the base lines.

LESSON XVIII.

PERSPECTIVE.

All objects or parts of objects to be represented in a drawing by parallel lines which may be in sight from the observer's position, seem to converge toward a point that is exactly in front of his eye, when he looks in the direction he knows to be that in which the objects or parts of objects extend. The place where these lines seem to come to a point is always on the horizon.

What is the horizon?

It is the apparent junction of the earth and sky. This is well illustrated on the sea or on any plane where the horizon is clearly discernible.

Where is the horizon?

It is on a level with the eye quite a distance in front of the observer. The earth being round, the surface gradually reaches a level with the eye, thus forming the horizon.

Notice in a road, a street, a railroad, or anything similar to these, the parallel tracks or rails, etc., seem to come to a point at a great distance from you. The place where they apparently come to a point is always on the horizon line opposite the observer's eye. But we all know that these tracks or rails as they go away from us are parallel; that

they will be no nearer each other a mile away if we walk along them that far than they are at our feet here.

If we make a drawing of them then on our paper exactly parallel, this will be drawing them as we *know them to be*. But this drawing will not look in the least as those tracks or rails do, as we stand and watch them going far off across the country. As they go away from us the sides of the track appear to get nearer together as the track goes farther away, until if we can see so far we can almost believe they come to a point of meeting in the distance. Now if we draw them thus, we shall draw them as we *see them* and *not as we know them to be*.

If we stand upon a plain where our view is not obstructed by trees, houses, or any object, and follow the lines of track out as far as we can, we shall find they seem to meet at a point where the earth and sky appear also to meet. This line, as we have observed, between the earth and sky, or sea and sky, is called the horizon, and where we hear the expression "a horizontal line" we will know that it means a line running straight across our view, just as the horizon does.

As we stand on the plain and look at the horizon we will find by holding a pencil up horizontally across our eyes that it just shuts off the view of

the horizon. So we may say that the horizon is on a level with our eyes.

Is this true at whatever height we are placed?

Step upon a ladder and again hold the pencil across your eyes; will the horizon again be out of sight behind it, or will it be below? Or, by sitting down, or stepping into a lower place than your first position, from which you could still see the horizon, would it again be hidden by the pencil held before your eyes?

Hence we see that the horizon is not a stationary line, in fact, it is not a real line at all, though so called for convenience, but is simply a term used to express the limit of distance upon the earth's surface which your eyes can see.

If we are low down we can see less of the earth's surface; if high up we can see more; the horizon line is therefore exactly opposite the observer's eyes wherever he stands, and consequently is not the same to any two persons unless their eyes happen to be exactly the same height from the earth.

Therefore we can never be at a loss to know where such a horizon would be; at whatever height we are placed the horizon would always appear at just the height of our eyes.

If your eyes are four feet above the ground and a horizontal line were drawn to represent where

you are standing and one to represent the level of your eyes, the line last drawn would be called the horizon line.

Let one-half inch represent one foot. Now draw these horizontal lines two inches apart; thus you will indicate a space of four feet between them. Suppose two people were standing, one on each side of you, one foot from you. Make three



FIG. 1.

FIG. 2.

points, one-half inch apart, on the bottom line, the centre one to represent your position, the others to indicate the position of the other two people, and one point on the horizon line just opposite the centre point on the bottom line. This is called the centre of vision. Should these people go from you toward the horizon, if they keep their relative

position throughout, when they reach a place on a level with your eye they would appear as one object. Thus the point which you made on your horizon line would represent the place where they would seem to become one object or vanish, as well as the centre of vision.

So we see that the centre of vision is the vanishing point when there is only one vanishing point in the picture. Draw lines from the two points made to indicate the position of these two people to the centre of vision on your horizon line as in Fig. 1.

Practice drawing railroads in the same manner. Notice the ends of the ties of a railroad seem to extend in a direction parallel with the rails and they also become dimmer as they recede, until they finally vanish from sight.

LESSON XIX.

OVAL, OVOID, ETC.

An oval is oblong and curvilinear, with both ends of about the same breadth.

The difference between an oval and an ovoid is

—the oval is a plane surface, while an ovoid is a solid.

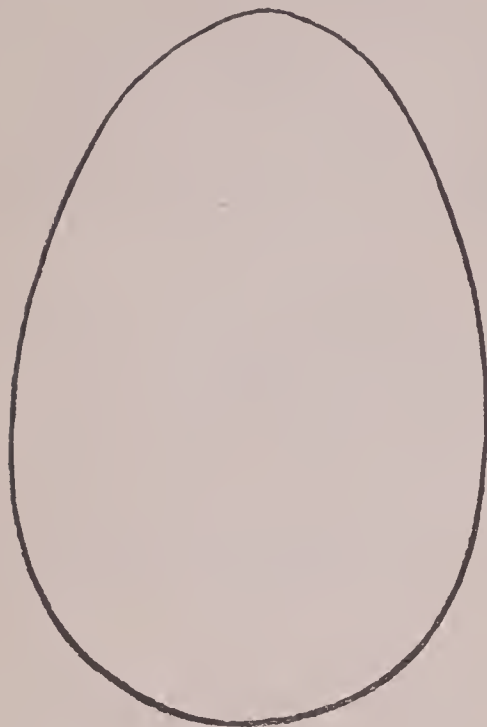


FIG. 1.

An egg is ovoidal in shape.

The same difference exists between the ellipse and ellipsoid; also, the circle and the sphere.

Fig. 2 is the drawing of a plum, which you will find is the shape of an ellipsoid.

Draw a plum and an egg.

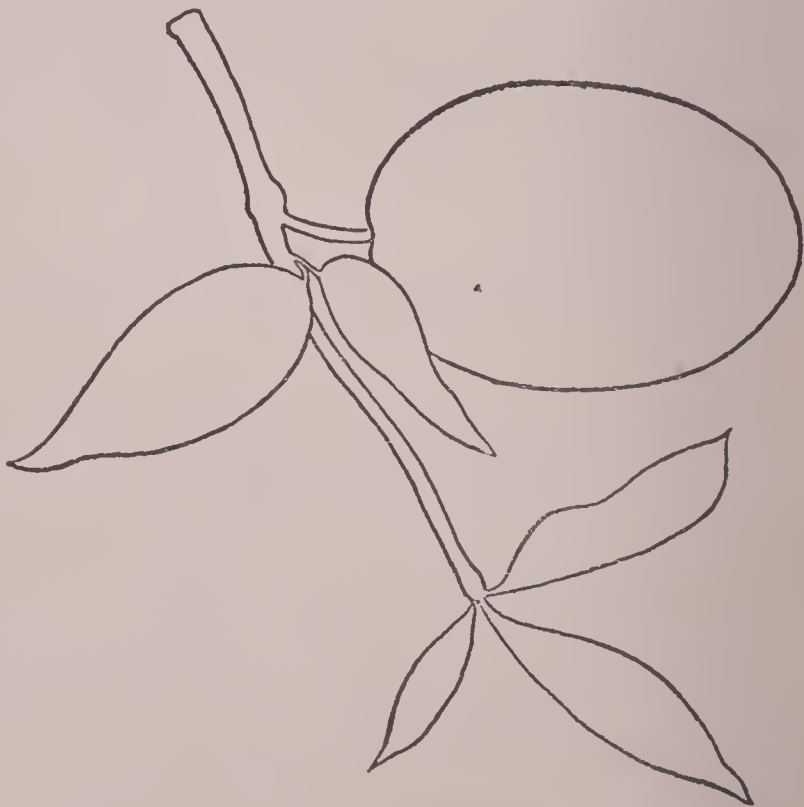


FIG. 2.

LESSON XX.

THE PAPER PATTERN CUBE.

Given one face of a cube, Fig. 1. Add to this drawings of the other faces, as though all of the faces of the cube were unfolded and spread out on a plane surface and the result will be a pattern of a paper cube, Fig. 2. Fig. 3 is a pattern cube with laps; make this pattern on



FIG. 1.

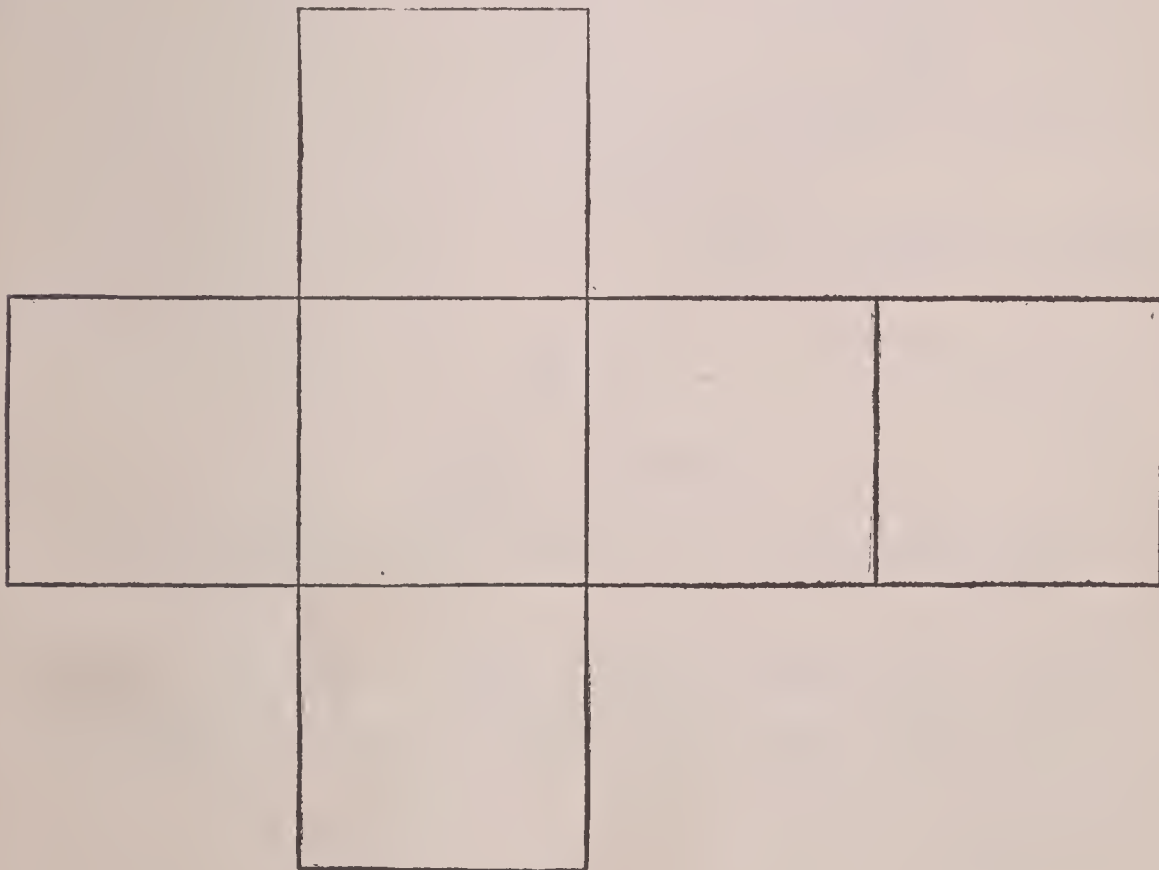


FIG. 2.

stiff paper, cut it out, fold and paste so as to

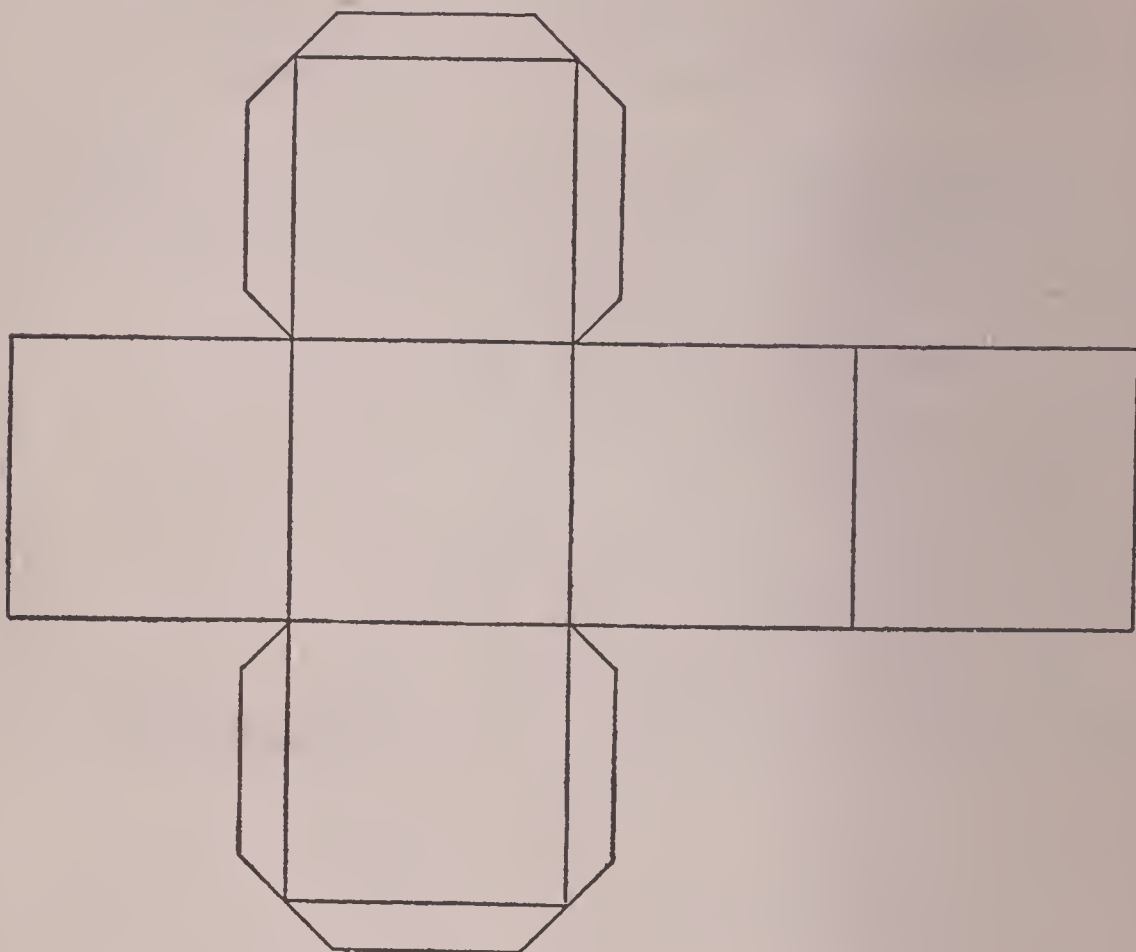


FIG. 3.

make a hollow cube.

LESSON XXI.

THE CIRCLE AS TO FORE-SHORTENING.

Place the circle resting upon one flat surface on your table and look down upon it. What do you see?

A circle.

What should the drawing of this view be?

A circle.

In this view would all of the diameters of the circle be of the same length?

Yes.

Move back three or four feet from your table, leaving your circle in the same position as before. Compare by measuring at arm's length the width of the circle from front to back with the horizontal width. First find the measure of the width of the circle from front to back by holding your pencil vertically at arm's length with the point opposite the center of the back edge of the circle; place your thumb on the pencil opposite the center of the front edge of the circle. Apply this measure to the horizontal width. Are the two measures you have just compared the same?

No; the horizontal width is longer than the one from front to back.

What should the drawing of this view be?

An ellipse.

This is due to your position with regard to the circle.

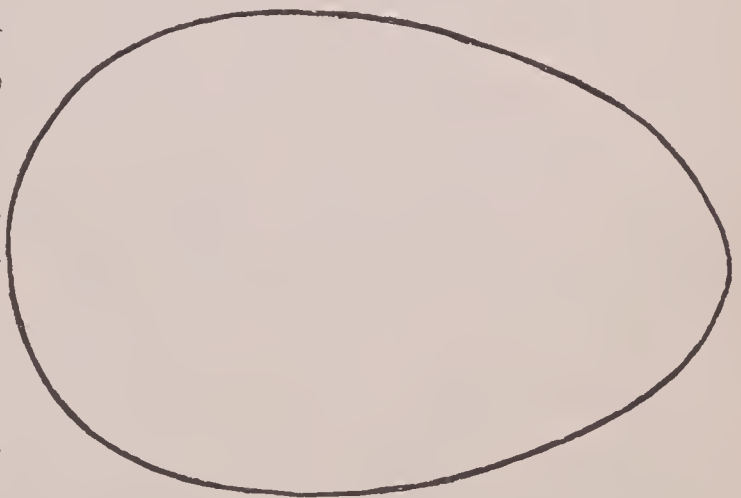


FIG. 1.

What is an ellipse?

An ellipse is an oblong figure bounded by a regular curve, as Fig. 1.

From the same distance compare the measures of this position of the circle placed upon a book on the table. Do you find them the same as before?

No; the width from front to back is narrower compared to the horizontal width. This is due to the raised position of the circle; thus we see that the nearer this view of the circle approaches the level of the eye the narrower it appears from front to back, until when it reaches the level of the eye it appears as a line. Remember this when representing the different positions of circles.

Draw an ellipse on practice paper to represent one of the positions of the circle which you have just measured. First make a horizontal diameter to represent the horizontal width of the circle, then make a vertical line, crossing this horizontal line, to represent the width of the circle from front to back. The place where these lines cross should be the centre of each line. Draw your ellipse, beginning at the lowest point, as you did the circle. Use the free arm movement, keeping the pencil pointed toward the left and your hand in the proper position for drawing circles.

LESSON XXII.

PROPORTION.

What is proportion ?

Proportion is the result of the comparison of one object with another, or of different parts of the same object, with regard to size.

In the drawing of a house, if the windows are larger than the doors and the chimney larger than the windows, each window, each door and the chimney may be drawn correctly in itself, but the drawing as a whole would be incorrect as to proportions.

Again, in a picture which contains a man, a house, and a tree, all the same distance from the observer, although the drawing of each is correct in itself, if the man is larger than the house it would not be a picture having correct proportions.

Thus we see the value of the relative proportions of objects or parts of the same object. Find the proportions of some objects near you by comparing the measures of their length and width found by measuring at arm's length, as a door, a table, chair, etc.

The appearance of the size of an object is governed by its distance from the observer. All objects seem to become smaller and dimmer as they

recede from you. In representing two trees of the same size, one near you and one far from you, the drawing of the one near you should be larger than the other according to the distance between them. This distance is represented in a drawing by the space between the bases of the objects, and their distance from the observer by the space between the base of the object and the lower edge of the paper, as well as the size and shade, as in Fig. 2.

In representing a man going from you, suppose you should make a drawing of him when he is ready to start, another when he is a short distance from you, and so on until he is almost beyond

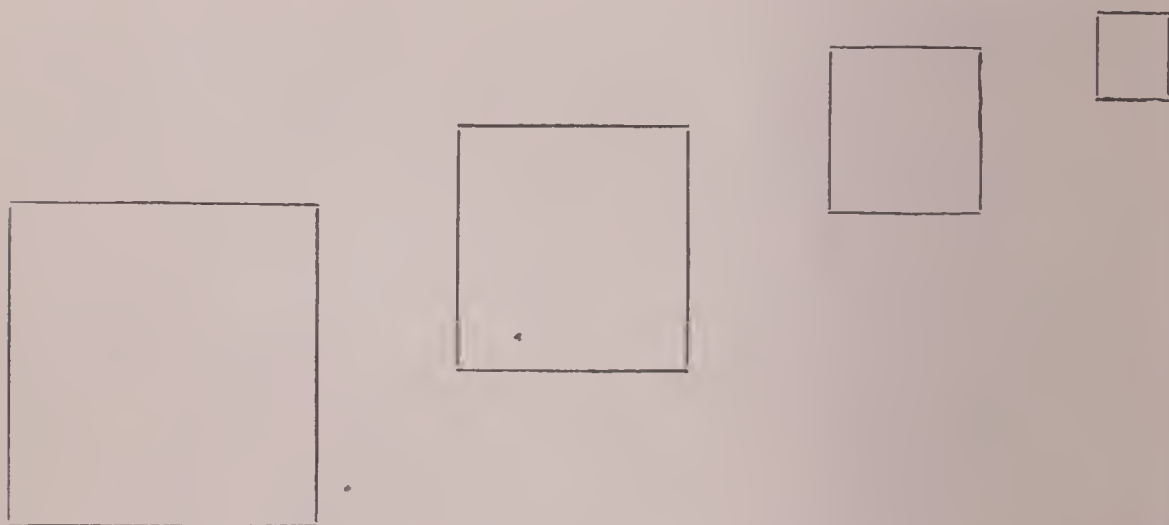


FIG. 1.

your sight, the last drawing would represent him as appearing very small. The same thing is true of trains, street cars, balloons, kites, birds and all objects going from us.

So we find that objects appear smaller and dim-

mer as they recede from the observer. Draw squares to represent this.

Should these squares all be in a horizontal row on your paper?

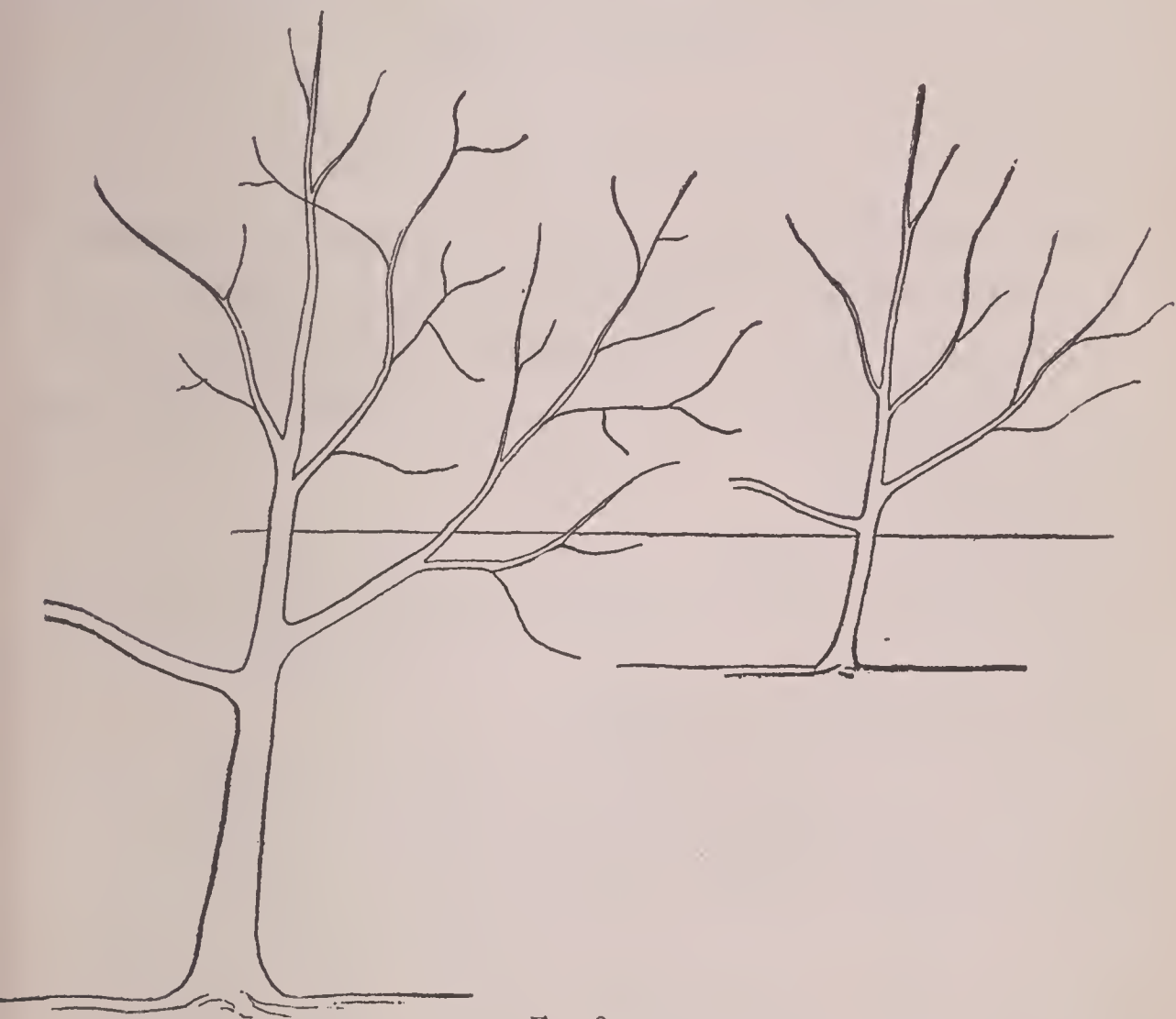


FIG. 2.

No; as they grow smaller they should be put back farther on the paper as in Fig. 1.

Why should they be put back farther on the paper?

Also, Fig. 2 shows the same tree at different distances from the observer. Some of the very

small limbs cannot be seen in the farther tree. Notice particularly the relative position of their bases.

LESSON XXIII.

LIGHT AND SHADE.

In order to produce a good picture of anything a careful study of light and shade is necessary.

On the objects themselves we call the dark parts shades; in a picture or drawing they are called shading.

What is shading?

Shading is that which represents the effect of light and shade in a picture or drawing, or it is the filling up of an outline.

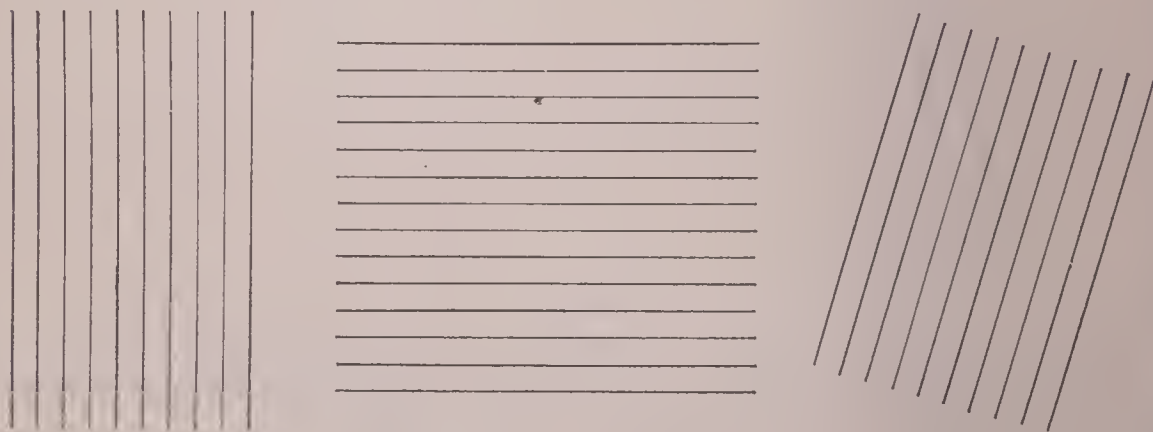


FIG. 1.

Make a group of short vertical lines, another of short horizontal lines and another of short oblique lines, as in Fig. 1.

The lines in each group should be of uniform width, of the same shade and as nearly the same distance apart as possible.

Draw a square and shade it as in Fig. 1. Also make a group of curved lines, as in Fig. 2, having

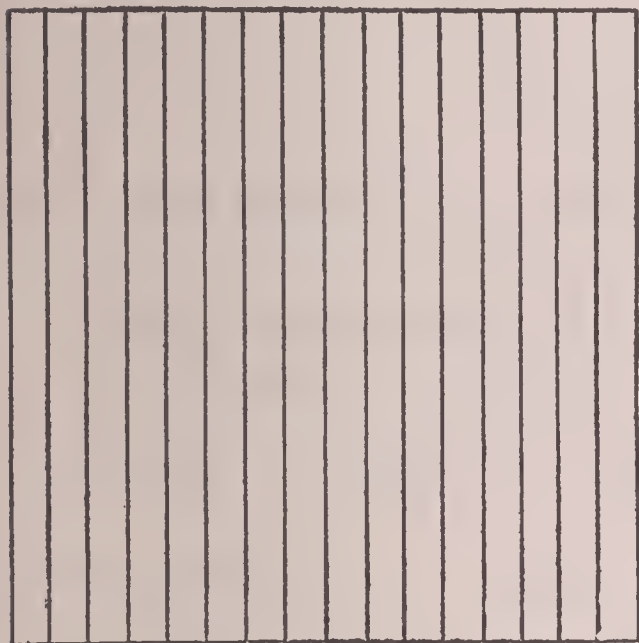


FIG. 1.



FIG. 2.

these lines of uniform width, of the same shade and as nearly the same distance apart as possible.

Lines for shading should generally take the same direction as one part of the outline of the drawing to be shaded.

LESSON XXIV.

A STUDY OF THE LIGHT AND SHADE OF THE CUBE.

To make the effect of light and shade strong, light must come from one direction only. Where

it is possible, have the light come from the left, above, and a little back of your position, for convenience.

SOME POINTS TO BE CONSIDERED IN SHADING.

First.—Direction of the light.

Second.—The darkest side.

Third.—The high light.

Fourth.—The influence of the different reflections upon the shades of the objects.

Fifth.—The shadow which the object casts.

Sixth.—The fore-shortening of the shadows.

Seventh.—Study lights and shades with one eye closed.

Eighth—Shade by using the simplest lines possible, following the outline of the object where you can.

Sometimes you can omit the outline altogether on the dark side of the object and use the shading so as to make the entire outline; do this whenever it is possible. Make your outlines dependent upon, or secondary to, the effect of light and shade. In representing the light side of an object use very light outlines and where the light side of one object comes against the dark side of another, omit the outline altogether.

Place the cube on your table as in Lesson XVII. Determine its size and draw the outline, then study

the light and shade. First notice the direction of the light, then look for the darkest side; shade this side as in Fig. 1. Next notice the side toward the light; is there one spot on this side lighter than the rest? The lightest spot on any object is that which is nearest the light and is called the *high light*. Remember to use very light outlines to represent the light side of an object. We will now turn to the side of the cube which is of medium shade, this should be shaded with lines which are lighter and farther apart than those representing the shade of the darkest side.

Only horizontal lines should be used in showing the shadow which objects cast on the table and the shadow should be made darker than the shade representing

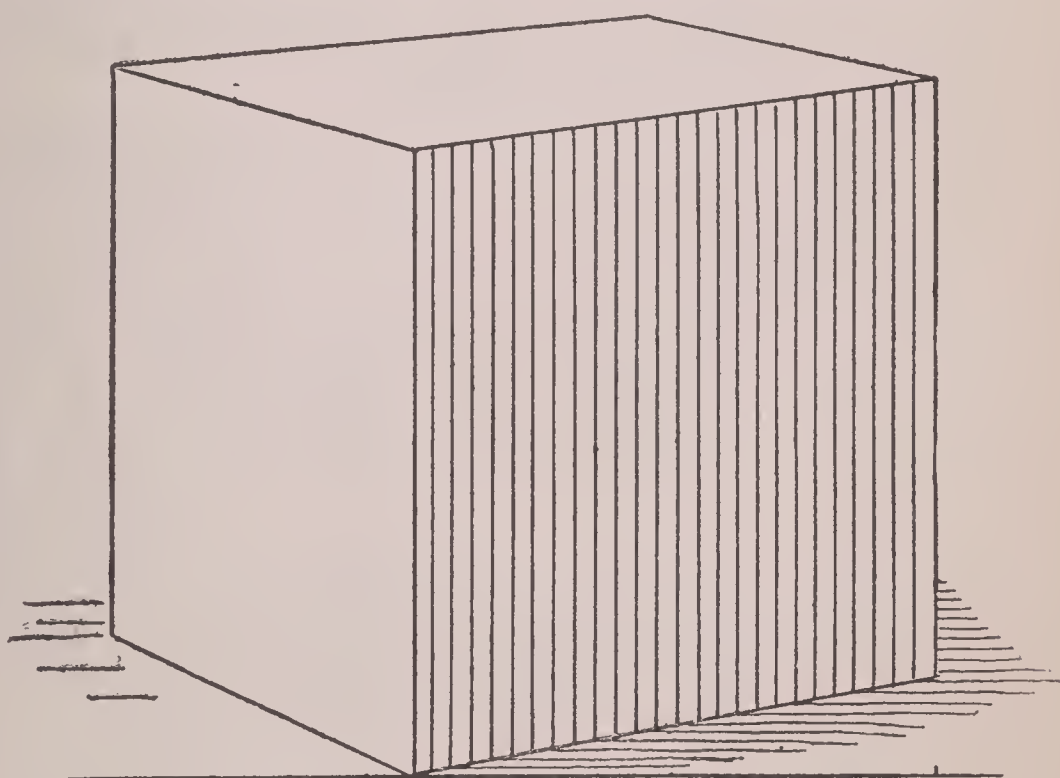


FIG. 1.

the dark side of an object. Do not carry these shadows too far upward, as they are on a horizontal plane and consequently are fore-shortened.

Do vigorously what you do in light and shade, let your work in this direction be whole-hearted and healthy. Make your outlines strong and have no light and shade, or have strong light and shade and as little outline as possible. Do not in any case have strong, dark outlines and weak light and shade.

From the study of the light and shade of the cube in the position represented in Fig. 1 the following formula is suggested.

FORMULA FOR SHADING.

I.—Decide whether you will use *strong light and shade* or *strong outlines*.

II.—If you decide upon strong light and shade notice carefully the relative degrees of darkness of the different parts of your object and shade accordingly. The degree of shading is of great importance.

III.—Compare the relative degree of darkness of the shade of the darkest side and the shadow which the object or objects cast and shade accordingly. Consider carefully the fore-shortening of the shadow which the object casts. In representing this shadow use horizontal lines.

IV.—The lines of the shading of an object should have the same direction as the outline of that part of the object to be shaded. Leaves and a few other objects are exceptions.

LESSON XXV.

A STUDY OF THE LIGHT AND SHADE OF THE SPHERE.

Place the sphere in a good light. Determine its size and draw the outline, then study the light and shade. By proper shading your drawing will appear rounded and full like a sphere, instead of a mere flat surface.

First we notice that the sphere is not the same tone all over, then we generalize by saying that it is darker on the side away from the light. Now notice the side nearest the light, we see that one spot is lighter than the rest. This we call the *high light*. We further see that this spot where the high light appears is that *nearest the light*, and we notice that the daylight, coming from above us, throws its rays of light somewhere upon the *upper part* of the sphere.

Turning again to the dark side, we find it simpler and more of one tone than the light side, but we notice that the darkest part of the sphere does not seem to be nearest the light, nor yet quite on the edge of the sphere away from the light, but between the two. It cannot always be noticed that the darkest part does not extend to the outer edge nor is it always easily seen that a reflected light,

from the table and from the ceiling, and perhaps a light partly thrown from the window if it be high, prevents the darkest part, which we find

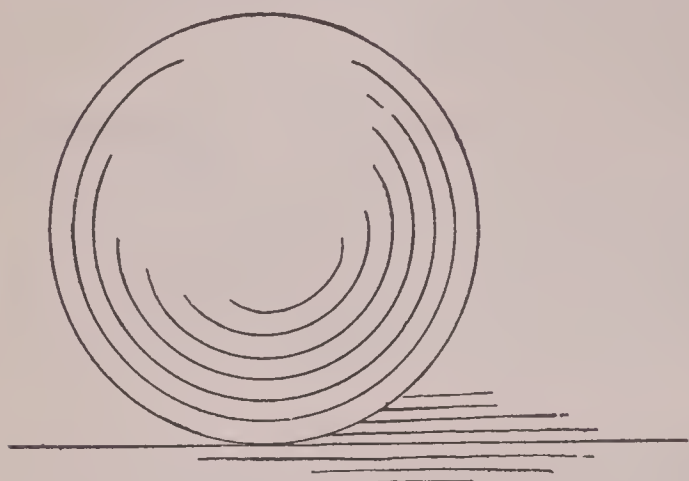


FIG. 1.

between the light side and the edge of the sphere, from extending to the top and bottom of the sphere. It is, in other words, kept *a little away* from the edge of its

circular outline in *all directions*.

In representing the sphere as in Fig. 1, carefully follow the suggestions in "Some Points to be Considered in Shading" and the "Formula for Shading."

LESSON XXVI.

A FEW SUGGESTIONS IN DRAWING.

I.—Select some simple object with a dull surface. Choose large objects at first, then, after reaching a certain degree of competency, study smaller ones. Use only those objects which are good in form.

II.—Place the object in a good light.

III.—When measuring, drawing, and considering the light and shade of an object you should be about six or ten feet from the object, unless otherwise designated. This distance is mentioned for beginners to avoid the annoyance of the little details which suggest themselves in the drawing of objects when the observer is near the object to be drawn. First consider the large parts of an object, an easy thing to do when you are too far from the object to see the small details. After you can make a good drawing of an object at this distance you may take a position about three or four feet from the object. The same formula may be used in drawing all positions of any object from any distance.

IV.—Determine the size and proportions of your object and suggest these by blocking in, with light lines, the general outline. Then test the correctness of this sketch by finding the proportions of the object by measuring at arm's length. If your sketch proves to be very incorrect as to proportions, etc., make a new blocking, otherwise correct the one first made. Do not block laboriously.

V.—Fill in and round out the blocking until it is a good representation of the object to be drawn. Carefully represent all parallel edges of the object by parallel lines in the drawing and have a correct

relative position in the drawing for all points in the object.

VI.—Do not use an eraser until your drawing is finished, then strengthen the lines which are correct and erase the incorrect ones.

VII.—At first study and draw single objects without reference to the background or any surroundings. After you have learned to draw an object well you may then shade it, putting in only a few of the simplest shades and the shadow which the object casts. Avoid shading your drawings too much and with too many lines.

VIII.—Draw, criticise your drawing, then draw again the same object in the same position, and notice the improvement in your last drawing.

IX.—In drawing any hollow object, as a cup, bowl, tumbler, etc., especial attention must be given to the suggestion of thickness at the top and the appearance of rounded hollowness. This can be shown by the careful drawing of the elliptical outlines of the top and sometimes by a touch of shade on the inner surface. Where is this appearance of thickness most noticeable, at the ends of the long or the short diameter of the ellipse?

X.—Study the light and shade of your object following the instructions given in Lesson XXIII. Shade according to the "Formula for Shading."

LESSON XXVII.

BRANCHES OF LEAVES.

In drawing a branch of leaves indicate with light lines the proportions and slant of the main stem to which the leaves are attached. Locate the



different leaves by a point on your paper for the tip and one for the place where they join the main stem. Notice particularly the *fore-shortening*, *proportions*, and *relative position and proportions* of all

of the leaves. Also their distance from the main stem. Remember an uneven number of any object is generally the rule.

LESSON XXVIII.

STUDY OF THE PLANE TRIANGLE.

What is a plane triangle?

A plane triangle is a portion of a plane bounded by three straight lines and having three angles.

Compare the square and triangle as you did the square and circle, following the "Order of Study."

After making this comparison study the triangle as follows: Hold the triangle in front of you at arm's length, on a level with your eye, with one face toward you; what do you see?

A flat surface bounded by three lines and having three angles.

What would a drawing of this view be?

A triangle.

Hold the triangle in front of you at arm's length, on a level with your eye, with one side vertically toward you; what do you see?

An edge.

What would the drawing of this view be?

A straight vertical line.

Draw these two views of the plane triangle.

A *right-angled triangle* is a triangle having a right angle.

A *scalene triangle* has no two sides equal. Draw three different ones.

An *isosceles triangle* has two of its sides equal.

An *equilateral triangle* has its three sides equal.

Practice drawing the face of these different kinds of triangles.

In drawing the face of a triangle make the bottom line first.

LESSON XXIX.

THE CYLINDER.

Notice that the ends of a cylinder are equal, parallel circles, and the lateral surface is uniformly curved.

The circular ends of a cylinder are called its bases.

Hold the cylinder in front of you at arm's length, on a level with your eye, with *one base* toward you; what do you see?

A circle.

What would the drawing of this view be?

A circle.

Would the drawing of the other base be the same if viewed from the same relative position?

Yes; it would also be a circle.

Hold the cylinder vertically in front of you at arm's length, on a level with your eye, with one side toward you; what do you see?

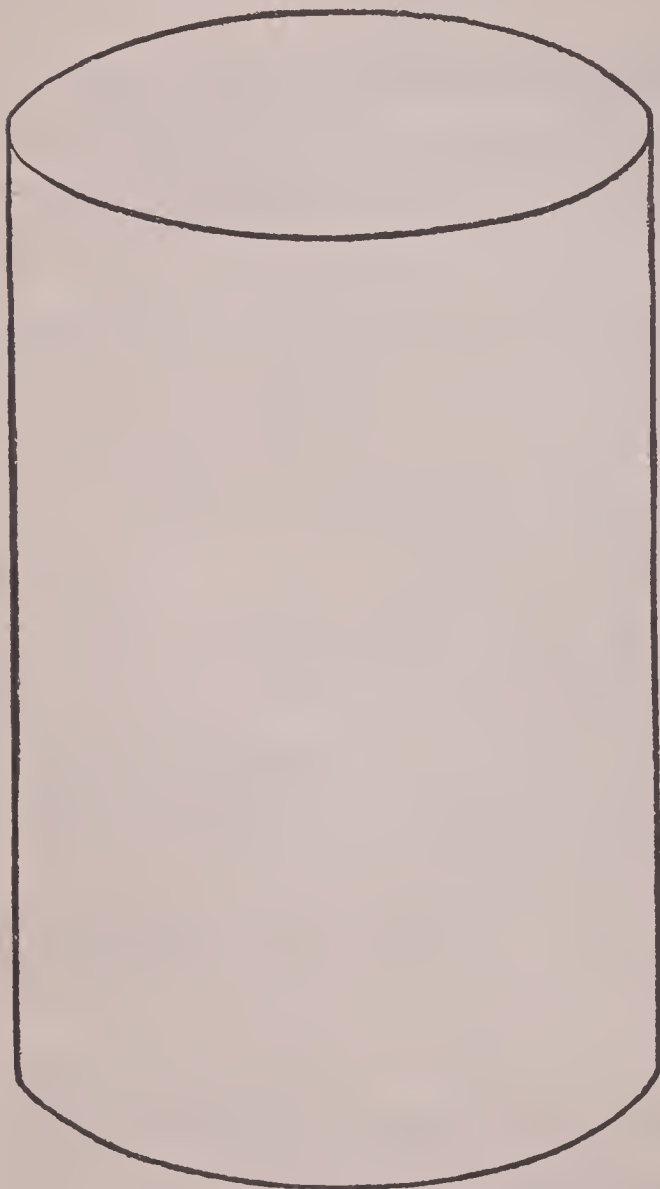


FIG. 1.

A uniformly curved surface.

Place the cylinder vertically below the level of your eye. Compare the measures of the top of the cylinder as you did the circle in Lesson XXI.

Should you raise the cylinder in this position would the appearance of the top be changed?

Yes; it would appear fore-shortened.

So we notice that as the lateral surface

of a cylinder approaches the level of the observer's eye the top seems less like a circle.

Place the cylinder vertically below the level of the eye, find the proportions and draw the outline as in Fig. 1.

Notice that the drawing for the top should be an ellipse, and the bottom of the cylinder, being parallel with the top, should be represented by a line parallel with the front edge of the ellipse for the top.

In drawing the vertical lines for the sides allow the pencil to trace the lines for the top and bottom of the cylinder a short distance.

First draw the ellipse for the top of the cylinder, next the line for the bottom, then those for the sides. Shade the darkest side and also make the shadow which the object casts.

LESSON XXX.

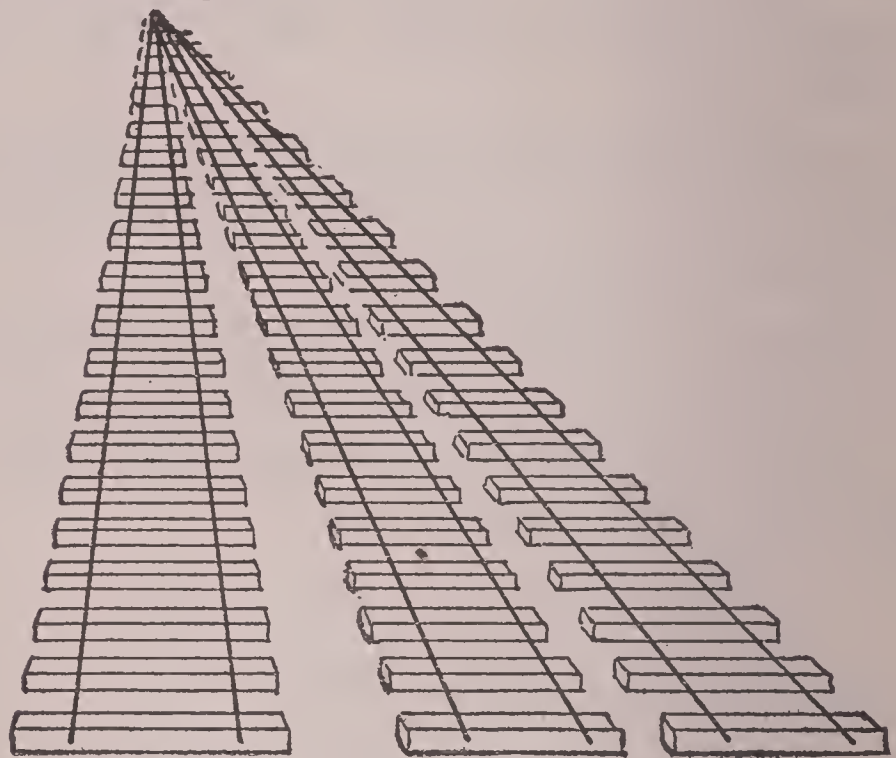
PERSPECTIVE.

Any *set* of parallel objects to be represented in a drawing by parallel lines which may be in sight from the observer's position seem to converge toward a point that is exactly in front of his eye, when he looks in the direction he knows to be that in which the set of objects extends.

Use the railroad again as an illustration. Suppose there are several parallel tracks in sight, and

you fix your station point in front of one of the tracks; your center of vision or vanishing point will be on the horizon line opposite your eye. The tracks which are at one side of you, being parallel with the one directly in front of you, will vanish

Center of vision
or vanishing point.



Station point.

FIG. 1.

at the same point with the one in front of you. Fig. 1. Lines to represent the parallel edges of a box, those for the sides of a house, or any similar object where these edges extend from you converge in the same manner.

LESSON XXXI.

A DRILL EXERCISE—FIG. 1.

First draw the horizontal line. The diameter of the circle which touches this line should be

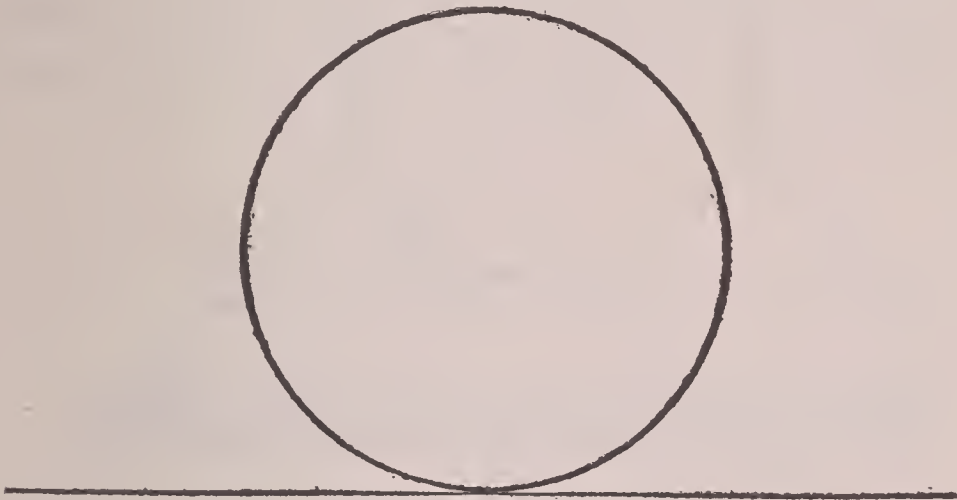


FIG. 1.

about one-half as long as the horizontal line just drawn.



LESSON XXXII.

A BOOK AND A SPHERE—FIG. 1.

Place a book, with the sphere resting upon it, on your table in a good light.

Find the proportions and draw, with light lines, the outline of the book without reference to the sphere. Then determine the position of the sphere

with regard to its distance from each visible edge of the book. Compare the size of the book and sphere and draw the outline of the sphere accordingly. Notice particularly the fore-shortening of

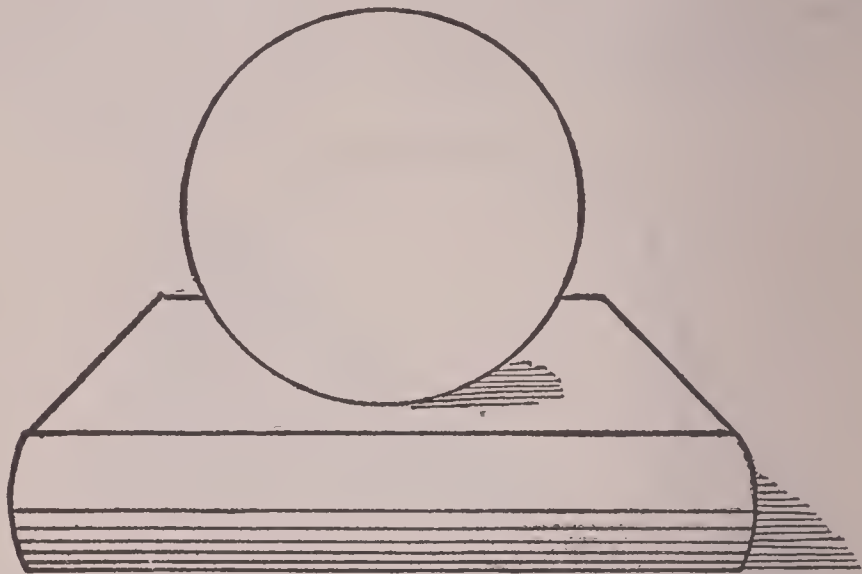


FIG. 1.

the space between the front edge of the book and where the sphere rests.

Erase the lines representing that part of the book which the sphere hides from view.

LESSON XXXIII.

PERSPECTIVE.

Place a book on your table in such a position that you can see only one side and the top.

Draw the side of the book which is toward you. Notice that the horizontal edges of the book are

represented by horizontal lines in the drawing and the vertical edges by vertical lines. Compare, by measurement at arm's length, the back horizontal edge of the top of the book with the front horizontal edge. Remember the result of this comparison until you find the width of the book from front to back compared to the horizontal width, then make the horizontal line for the back edge of the top of the

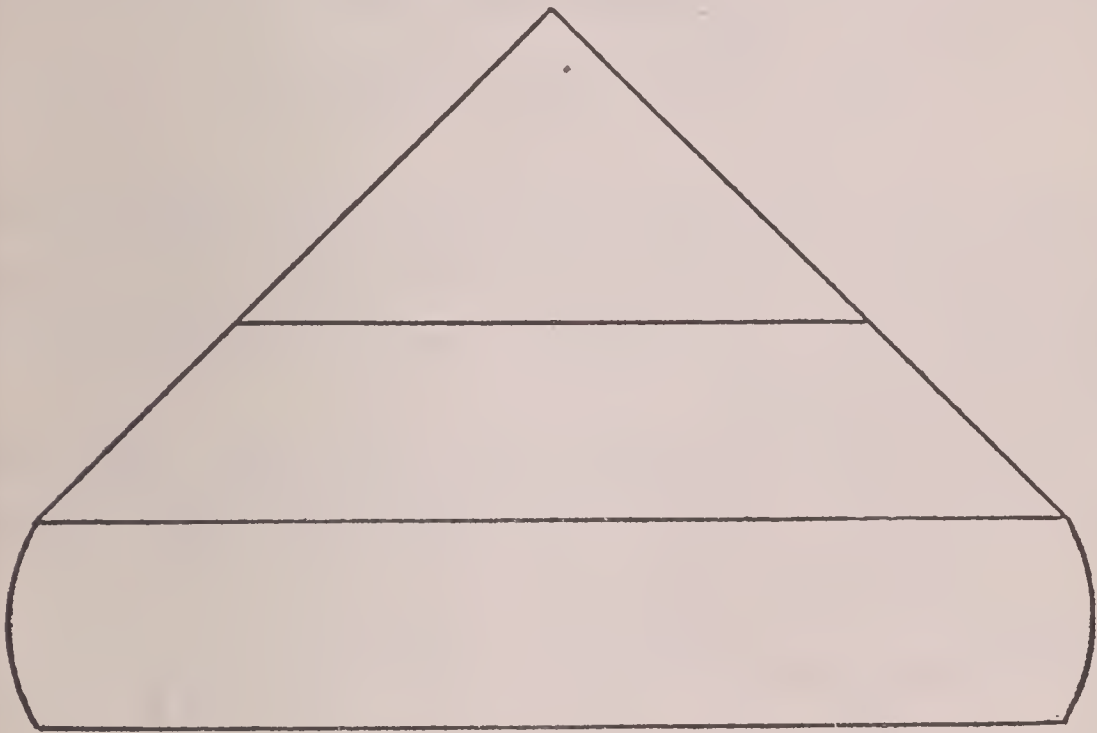


FIG. 1.

book of such a length and in a such a position as to satisfy both comparisons. Draw lines from the front to the back edge. Notice that these lines converge and would come to a point if long enough. Extend them until they meet; this then is their vanishing point, and a horizontal line drawn through the vanishing point would be the

horizon line as in Fig. 1. Would the lower edges of the book vanish at the same point?

Yes; all lines parallel with the top line would vanish at this point.

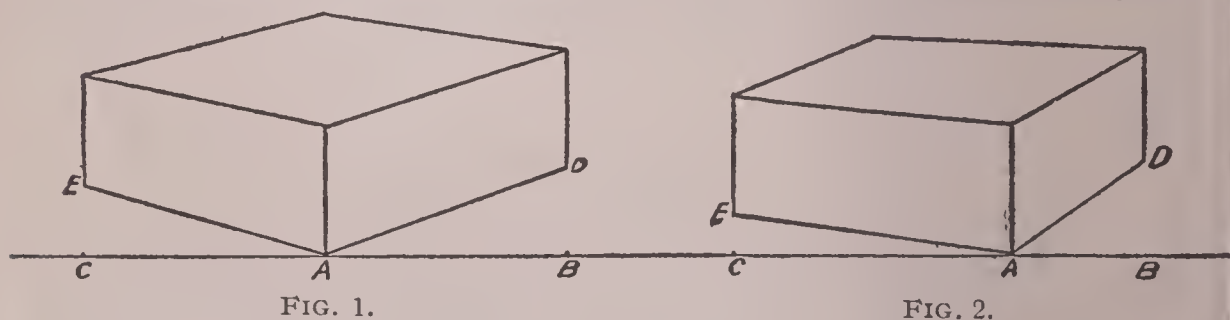
So we see that parallel lines and lines belonging to the same set of parallel lines vanish at the same point.

LESSON XXXIV.

THE RECTANGULAR SOLID.

Place the rectangular solid in a good light, determine its size and proportions and draw the outline, following the instructions given for drawing a cube. Then shade.

Notice when representing the solid with one corner toward you that your position with regard



to the solid determines the slant of the lines for the sides going from you. In Fig. 1 the distance from *A* to *B* is the same as the distance from *A* to *C*. *E* is about two-thirds as far above *C* as *D* is above *B*.

Now notice Fig. 2. The distance between *A* and *C* is almost twice the distance between *A* and *B*, and *E* is about one-third as far above *C* as *D* is above *B*. This difference in the relative position of these points makes a difference in the slant of the lines for the sides of the solid. Notice particularly that the slant of these lines depends upon *your position with regard to the object* to be drawn.

In representing the solid in different positions should you change your position or that of the solid?

Either would have the same effect.

If after drawing the object in the position indicated by Fig. 1, you move to the left a short distance, allowing the solid to remain in the same position as before, the distance from *A* to *C* will be greater than from *A* to *B* and the lower right corner will be farther from you.

In case you move the solid so that the lower back *left* corner approaches nearer you the lower back *right* corner will naturally go farther from you, and this will make the distance from *A* to *C* greater than from *A* to *B*. Thus the effect will be the same as when you move to the left.

Test this theory by placing different solids in different positions and drawing them in these positions. This applies to cubes, squares, plinths and similar objects.

LESSON XXXV.**A BOOK, BOX, OR SOME SIMILAR OBJECT.**

Place some object similar to a book, box, etc., in a good light, determine the size and proportions and draw, with light lines, the outline. Complete your drawing and from another position draw the same object in the same position. Notice the difference in the drawings of these views.

Leaving the object always the same, change your position and draw still another view. Draw several different views thus.

So we see that changing our position with regard to the object to be drawn changes the drawings of this object.

Consider carefully the proportions and foreshortening in each view.

LESSON XXXVI.**A CUP.**

This is similar to what object?

Place a cup in a good light with the handle to the right as in Fig. 1.

Find the proportions and draw the outline as you did the cylinder.

Notice particularly the position and proportions of the handle and the space between the cup and the part of the handle farthest from the cup compared with its height. In your drawing represent the handle by two lines.

After drawing this position of the cup turn it so that the handle is farther from you and compare

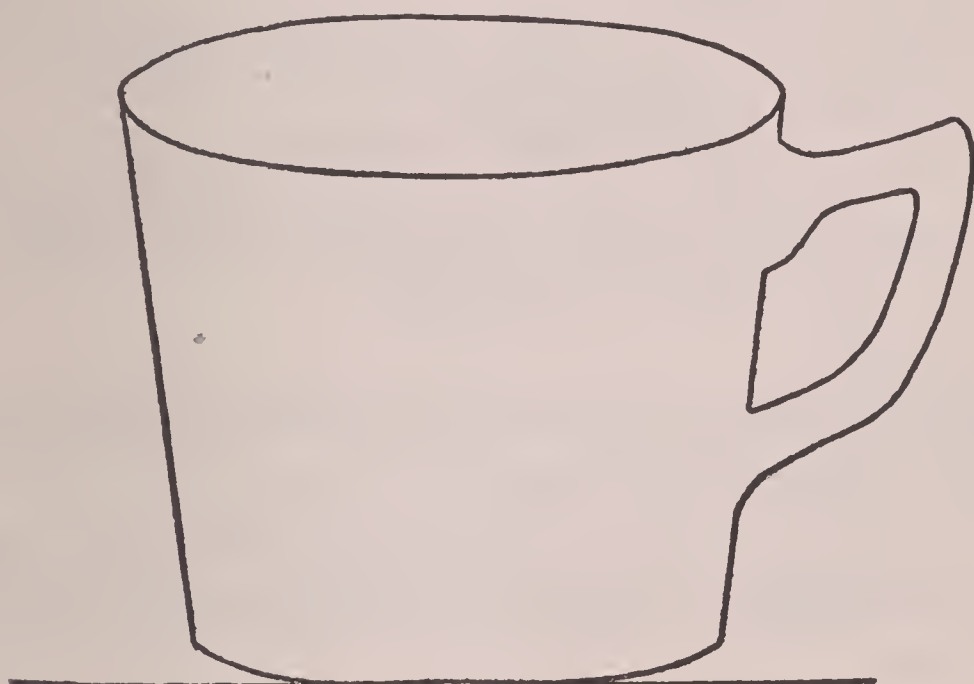


FIG. 1.

the space between the cup and handle with its height. Also turn the cup so that the handle is nearer you than in the first position and compare the space between the cup and handle with its height.

Thus we see that this space is governed by the relative position of the observer.

LESSON XXXVII.

A STUDY OF THE CONE.

Compare the cone and cylinder as you did the circle and square in Lesson V., following the "Order of Study."

A cone is a solid body tapering regularly to a point from a circular base.

Hold the cone in front of you at arm's length, on a level with your eye, with the circular base toward you; what do you see?

A circle.

What is opposite this circular base of the cone?

The point of the cone.

Hold the cone vertically in front of you at arm's length on a level with your eye; what do you see?

A conical surface.

Place the cone vertically on your table. Find the proportions of the cone by comparing the measures at arm's length, then draw it in this position. The drawing for the bottom of this view would be one side of an ellipse. Draw the whole ellipse for the base, then above the center of this ellipse put a point to represent the point of the cone. Notice particularly the proportions. Draw lines from the point last made to the ends

of the ellipse allowing the pencil to trace the front line of the ellipse a short distance.

Erase the back line of the ellipse, as the part of the cone which this represents cannot be seen from your position.

“Draw what you see and not what you know to be there.”

LESSON XXXVIII.

A STUDY OF THE EQUILATERAL TRIANGULAR PRISM.

Compare the triangular prism and cylinder as you did the square and circle in Lesson V., following the “Order of Study.”

Also review briefly the study of the plane triangle.

What is a prism?

A prism is a solid whose bases or ends are similar equal and parallel plane figures, and whose sides are parallelograms.

Hold the triangular prism in front of you at arm's length on a level with your eye with one triangular base toward you; what do you see?

A triangular figure.

What would the drawing of this view be?

A triangle.

Hold the triangular prism in front of you at arm's length on a level with your eye with one side toward you; what do you see?

A rectangular surface.

What would the drawing of this view be?

A rectangle having the proportions of this surface of the prism.

Place the triangular prism on your table resting upon one triangular face, and look down upon the top; what do you see?

A triangle.

Raise the prism slowly and notice the effect on the appearance of this triangle. What change do you see?

The triangle appears to grow narrower from front to back. This is due to fore-shortening.

What effect would raising the prism until the top of the sides is on a level with your eye have on this triangle?

When the top of the sides reaches a level with the eye the triangle would appear as a straight line.

Test this by actual experiment.

How many triangular surfaces has a triangular prism?

Two.

How many rectangular surfaces?

Three.

How many edges ?

Nine.

How many corners ?

Six.

HOW TO DRAW A TRIANGULAR PRISM.

Draw a horizontal line on your table with school crayon. Place the triangular prism vertically upon your table, resting on one triangular base with one edge toward you and the lower front corner touch-

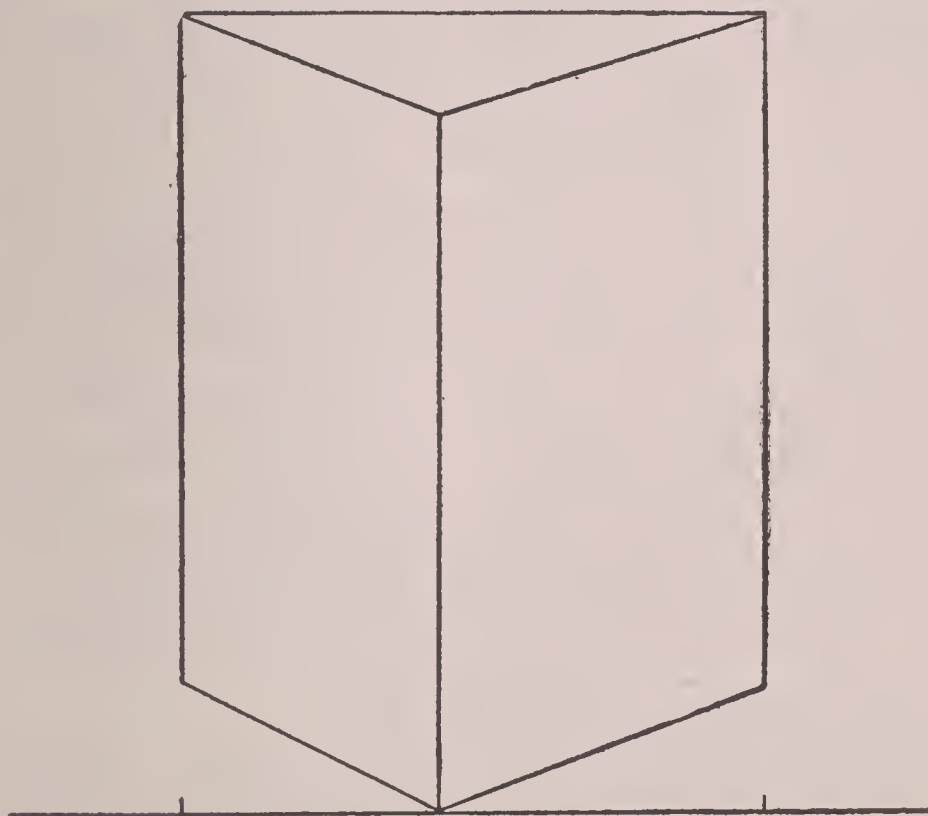


FIG. 1.

ing this horizontal line as in Fig. 1. Make points on the horizontal line opposite the lower back corners.

Draw the prism in this position. Remember that you should be about six or ten feet from the object to be drawn.

First draw a horizontal line on your paper to represent the one on your table, then make a point on this line to indicate where the prism touches the line on the table. Draw a vertical line to this point to represent the edge of the prism nearest you.

Find the lower right and left corners of the prism as you did the cube in Lesson XVII., and draw lines to represent the lower edges of the prism accordingly. Draw lines to represent the right and left top edges of the prism parallel with the lower lines converging some. Draw the right and left vertical edges of the prism, then connect the tops of these edges, and you will have completed a drawing of one position of the triangular prism.

Also draw a view of the triangular prism showing one triangular end and one side. Draw a horizontal line on your table, then place the prism so that one corner touches this line, as in Fig. 2.

Make points on this horizontal line opposite the lower back corners of the prism.

Now draw a horizontal line on your paper and make the points on this line to correspond with the place where the lower front corner touches this line and those opposite the lower back corners. Notice particularly the relative proportions of the space between these points. Find how far back the lower back corners of the prism should be com-

pared to the distance between the point where the corner of the prism touches the horizontal line and the point on the horizontal line opposite the lower back corner of the triangular face. Draw the bottom lines of the prism by connecting the point on the horizontal line to represent the place where the prism touches the horizontal line on the table with the points last found.

Make a point on the horizontal line half way between the point where the lower front corner

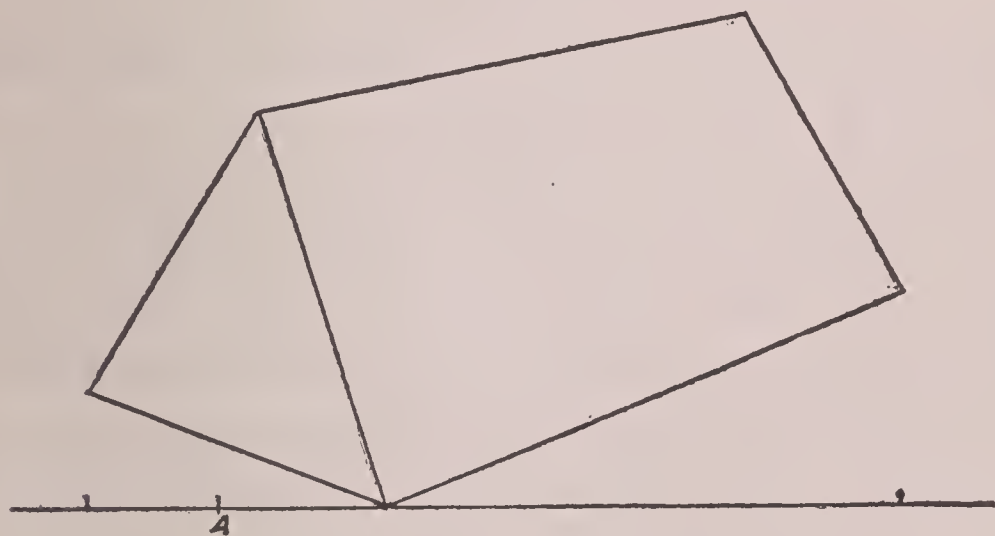


FIG. 2.

touches this line and the point opposite the lower back corner of the triangular face. Letter this point *A*, as in Fig. 2. Also make a point as far above the point last found as it should be to represent the top of the triangular face. Draw lines from this point to the lower front and back corners of the triangular face. Draw a line representing the top of the side of the prism from the

top of the triangular face, parallel with the lower line of the side of the prism, converging some, then connect these two lines with a line parallel with the line representing the right side of the triangular face of the prism.

LESSON XXXIX.

PERSPECTIVE.

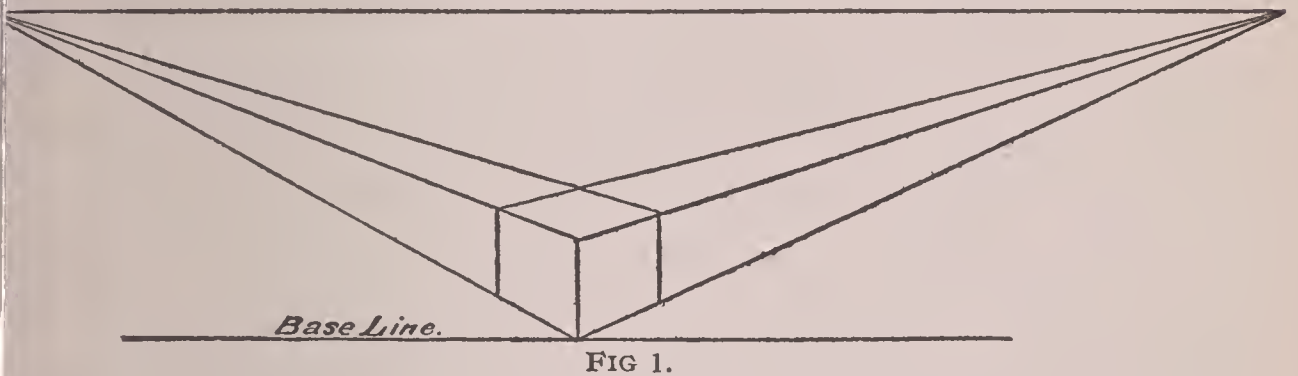
When looking at a house with one corner toward you, you see two of its sides.

From this corner suppose that one side of the house extends toward the north and the other toward the east. Should you draw this view of the house the lines representing the top and bottom of each side must converge because they are parallel lines extending from you toward the horizon line. If the sides of the house extended far enough each set of lines in the drawing would reach its vanishing point.

Thus we conclude that such a drawing should have two vanishing points, because there are two distinct sets of parallel lines extending from the observer toward the horizon line.

To illustrate this place a cube on your table at an angle of 45° or in a similar position to that

in figure I, and draw it. Now extend all of the parallel lines going from you on the right side of the cube until they meet at a common point, also extend the ones on the left until they meet at a common point. Draw a horizontal line through these points—this represents the horizon line. If the convergence of your lines is correct



these different vanishing points will be on the horizon line as in Fig. 1.

Study, in this manner, several objects similar to a cube.

Notice that all vertical edges in an object are represented by vertical lines in the drawing, and all horizontal edges by horizontal lines or lines parallel with the horizontal edges of the picture plane. But all parallel lines going from you or that make an angle with the picture plane would vanish at some point on the picture plane, providing that picture plane is large enough.

LESSON XL.**THE CUBE.**

Place a cube, or some similar object, on your table with one corner toward you.

From a distance of three or four feet draw a line to represent the nearest vertical edge, then notice the relative position of the lower back corners of the cube compared to the height of this vertical edge. Remember the result of this comparison until you have found the distance of these corners from this edge compared with its height. This determines the slant of the lower lines. Complete the drawing of the cube as in Lesson XVII.

Draw several objects which are similar to a cube, as books, boxes, etc., in this way.

By this plan you can draw such objects without the use of the horizontal line as in Lesson XVII., which is only necessary to determine the slant of the lower lines of the cube, proportion, etc., as *all measurements must be found by comparing horizontal or vertical distances.*

LESSON XLI.

PERSPECTIVE.

Through what do we see a picture in nature?

Through an imaginary vertical plane called the picture plane.

What is the picture plane?

This must be illustrated. Suppose you were to draw what you see through a window-pane. This window-pane bounds your view and is also the plane through which you see the picture. It would, therefore, be the picture plane of this view.

Again place a cube on your table and fix a piece of glass vertically in front of it. This glass is the plane through which you see the cube—thus it is the picture plane.

What represents this picture plane in a drawing?

That upon which the drawing is made. For example: From a position at arm's length from the glass draw the cube on the glass with a piece of soap, thus it would be the picture plane in the drawing, or if you make your drawing upon paper the paper would be your picture plane in your drawing.

Place a piece of glass in front of any object and draw upon the glass that view which you see through it, from a distance at arm's length; also

draw the same view upon a piece of paper. You will soon learn that the paper and the picture plane mean the same.

For convenience, in drawing, the paper is placed in a horizontal position, but in making a perspective drawing no matter how we place our canvas or paper, even though we should have our drawing-board, for instance, flat upon a table, we represent views of objects so that our drawing may be hung vertically and we seem to see, through a frame, a picture, just as we would see a view through a window.

The picture plane may be at arm's length in front of you or it may be at greater distance from you; that is optional with the observer, the view you take decides the distance of the picture plane from you.

LEAVES WITH IRREGULAR EDGES.

In drawing leaves with irregular edges find the relative position of all of the points and indented parts as well as the proportion, etc. Notice particularly the fore-shortening.

LESSON XLII.

GROUPING.

Grouping or composition depends upon three things—selection, arrangement and treatment.

SELECTION.—Use only those objects which are good in form. Neither too many straight angular objects nor round or curved ones *give a pleasing effect* in a group. For variety combine straight and curved forms in *pleasing* proportion. Also use objects of different proportions.

ARRANGEMENT.—The separate objects in grouping must be so arranged as to convey the effect of unity. Everything should be in a fixed place, perform an intended duty and act, in that part, advantageously for everything connected with it. A group must appeal to a sense of unity of several objects producing one whole. In order to produce this feeling of unity, it is necessary that one object be principal and all the other objects subordinate to it. Ruskin calls this the “Law of Principality.”

TREATMENT.—Unity must also be considered in the treatment of a group. The good, beautiful and strong points in the principal object must be fully brought out; and, while the subordinate objects should be as carefully drawn, the treatment of light and shade may be less vigorous than in that

of the principal one. When sketching the outlines of a group of objects, careful attention must be given to the drawing of the base of each object. Two objects must not occupy the same space on the table, or appear to do so.

Do not read too much about composition; there seems to be no fixed rules by which objects may be grouped. Almost every law of conventional arrangement has been broken time and again with most effective results. To *feel* composition rather than to *know* it is the truest and safest plan. Select a drawing of a correct grouping of objects and study the arrangement carefully, and thus imbibe a feeling for correct grouping.

The following are a few recognized rules of composition:

Usually the object of interest, whether figure or inanimate, should not be put exactly in the middle of your picture either as regards the distance right and left or up and down on the paper.

In arranging two important objects do not put one in a direct line with the other. An object which extends above the horizon line should not be placed directly above an object in the foreground which is not as high as the horizon.

Do not put an important object in the corner of your drawing.

FORMULA FOR DRAWING GROUPS OF OBJECTS.

I.—Select your objects according to the instructions given for grouping.

II.—Arrange your objects properly.

III.—You should be about six or ten feet from your group when measuring and drawing.

IV.—Find the proportions of the entire group; that is, the horizontal width compared to the vertical width of the space which the group occupies, and indicate these proportions on your paper with very light lines.

V.—Find the position and proportions of the most important object in your group and indicate, by light lines, its general outline.

VI.—Block in the other objects after comparing their relative size and position with that of the main object of the group; notice particularly the relative position of the base of each object. Remember that the position of an object in a group is indicated in a drawing by the distance between the base of that object and the lower edge of the drawing of the group.

VII.—One important point in a drawing is *proportion*; another is fore-shortening; another is the edges to be represented by the different lines, and still another is the convergence of parallel lines.

LESSON XLIII.

TWO BOOKS—FIG. 1.

Place two books on your table in a similar position to those in Fig. 1.

First draw the outline of the lower book, then find the position and proportions of the upper one compared to the lower one.

Special attention should be given to the distance from each visible edge of the top surface of the

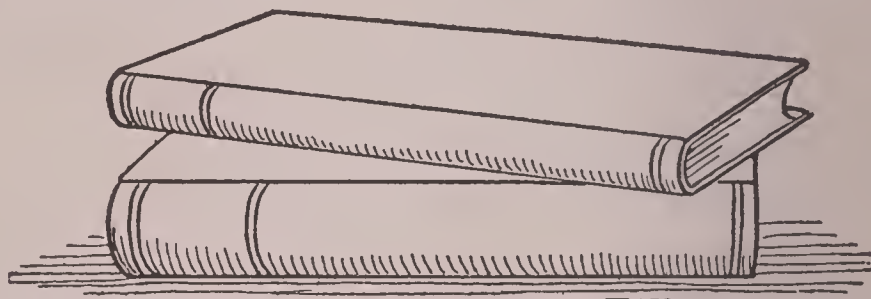


FIG. 1.

lower book to the edge of the lower surface of the top book, as this distance determines their relative positions.

Where the top book extends beyond the edge of the lower one it should be so represented in the drawing.

Any number of books may be thus represented in a drawing.

THE GRADED ❧ ❧ ❧ ❧

DRAWING SYSTEM

FIRST BOOK
PART II.....

LESSONS FOR THE SCHOOL

TO BE GIVEN BY

THE TEACHER.

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PART II.

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THE GRADED DRAWING SYSTEM.

General Instructions to the Teacher.

These lessons are so arranged that all grades may make the proper progress. They are to be given to the school by the teacher, who should simplify them still further if necessary for the advancement of the pupils. By carefully studying Part I, this may be successfully done and much accomplished in one year.

Notice in each lesson the work for the different years is designated.

Where lessons in Part I are to be used, you should give them just as they are to the pupils, unless you find some change necessary.

Bring out plainly the purpose of each lesson.

Do not allow the pupils to hurry in their work. Encourage them to ask all reasonable questions.

Each one should draw and measure the object on the desk of the pupil in front of him, as the one on his own desk is too near. This may be done by one sitting to the right and the pupil behind him to the left side of his desk and so on through the whole school.

Have the pupils make their drawings large. Notice particularly their position in all respects.

Each step should be carefully gone over a number of times so the pupils may thoroughly understand the work.

Any additional work which you think will be helpful do not hesitate to give it. Each teacher knows the needs of his own school best and the knowledge you should gain in Part I should prepare you for any additional demands.

MATERIALS:

Drawing book or paper.

Drill paper.

Blocks belonging to this drawing system.

Colored pencils.

Colored paper.

Laying sticks belonging to this drawing system.

Lead pencil.

One lesson on each kind of objects has been given in this work; you should be able to enlarge upon each suggestion; for instance, one lesson in bordering may only suggest a number of other arrangements, etc., also an object modeled from clay is only the first step toward general work in clay.

When giving lessons from Part I to the pupils you should carefully explain the work, then ask them the questions found in those lessons. The answers are given to aid you in case of doubt.

If you have no Tenth Year, you should give the work for years from Fifth to Tenth to all years above and including Fifth.

Read these instructions every day before giving a lesson to the school.

In giving lessons to years from Fifth to Tenth, always refer to the position of the object with regard to the eye, whether or not it is above or below the level of the eye.

Aim at freedom, originality and life in your work.

Part II is exclusively devoted to work which you are to give to the pupils, carefully explaining each step on the board. These lessons are made to aid you in judging the amount of work that should be given to the different grades in the school. Each lesson is divided into parts which you are to give to the different years and where it refers you to lessons in Part I give the lessons referred to as they are found in Part I unless the needs of the pupils make it necessary for you to alter them. In lessons where there are drawings, as in Lessons 13 and 14, Part II, for example, put these drawings on the board for the school to follow. Each lesson does not state definitely just what the *teacher* is to do, but gives the work that the different years in the school are to do; the teacher is expected to teach these lessons to the school; for instance, in Lesson I, you should give years from first to fifth a simple lesson on *lines* which you have made out by the study of Lesson I, Part I, while first to fifth years are drawing lines, give Lesson I, Part I, to fifth to tenth years as you find it in Part I.

Illustrate on the board each step in every lesson.

LESSON I.

First to Fifth Years.

A SIMPLE LESSON ON VERTICAL, HORIZONTAL, AND OBLIQUE
LINES.

Names of the different lines.

Rules for drawing lines.

Pencil holding, position and movement.

Fifth to Tenth Years Inclusive.

Lesson I. Part I.

LESSON II.

THE SQUARE.

First to Fifth Years.

Represent squares in two ways, by the use
of laying sticks and by drawing.

Fifth to Tenth Years Inclusive.

Lesson II, Part I.

LESSON III.

First to Tenth Years.

Dictation exercise by the teacher.

LESSON IV.

First to Tenth Years.

The Circular Drill. Part I.

LESSON V.

First to Fifth Years.

Draw circles and semi-circles.

Fifth to Tenth Years Inclusive.

Lesson VI, Part I. The Circle.

LESSON VI.

First to Fifth Years.

Divide a piece of drill paper, about the size of a sheet of essay paper, into six equal parts by one horizontal and two vertical lines (having the paper resting on your desk with the longest part horizontally), then in each division draw a circle with one continuous sweep. Also divide a piece of drawing paper in the same manner.

Fifth to Tenth Years Inclusive.

LESSON VII.

MEASURING.

Draw the lines to be measured on the black-board in front of each row of desks so the pupils may all have a good view.

First to Tenth Years Inclusive.

Place several apples in a good light. Give one to one of the pupils and have him select another of as nearly the same size as possible.

Give this exercise to the whole school to test their judgment of size.

Have them draw some simple object.

LESSON VIII.

First to Fifth Years.

Draw different angles on the board, have these years form them on their desks with laying sticks and draw them on drill paper. Teach

them the names of the angles and tell them which part of the figures is called the *angle*.

Fifth to Tenth Years Inclusive.

Lessons VIII and IX, Part I. Foreshortening and Blocking.

LESSON IX.

First to Tenth Years Inclusive.

REVIEW.

If the pupils are not thorough in some points in any of the previous lessons, arrange this review to particularly bring out those parts.

LESSON X.

First to Fifth Years.

Put Fig. 1 on the board and have these pupils practice this drill while you give the "Study of the Leaf" to fifth to tenth years.

After which have all years trace the edge of and draw the leaf as in Lesson X, Part I.

Fifth to Tenth Years Inclusive.

Leaves. Lesson X, Part I.

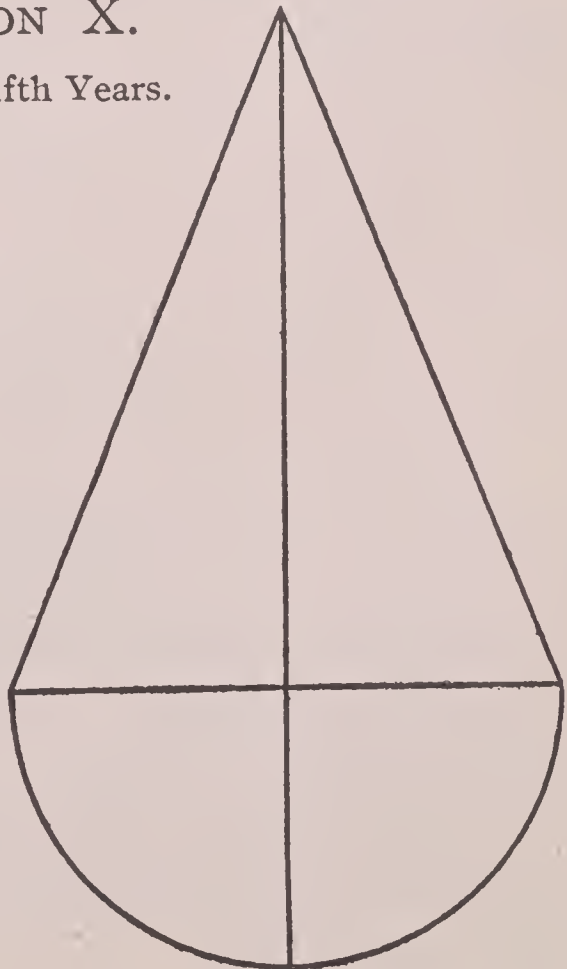


FIG. 1.

LESSON XI.

First to Fifth Years.

PRACTICE DRAWING CIRCLES ON DRILL PAPER.

After you have given the *Study of the Cube*, to *Fifth to Tenth Years*, give First to Fifth Years a simple study of the circle similar to Lesson VI, Part I, and have these pupils draw four views of a circle after you have drawn them on the board.

Fifth to Tenth Years Inclusive.

Lesson XI, Part I. Study of the cube.
Draw a cube.

LESSON XII.

First to Fifth Years.

Draw from the object as a model something similar to a circle, as palm leaf fan, etc.

Also a simple lesson on the comparison of the cube and sphere. This should be made as simple as possible.

Fifth to Tenth Years Inclusive.

Lesson XII, Part I. Comparison of the cube and sphere.

LESSON XIII.

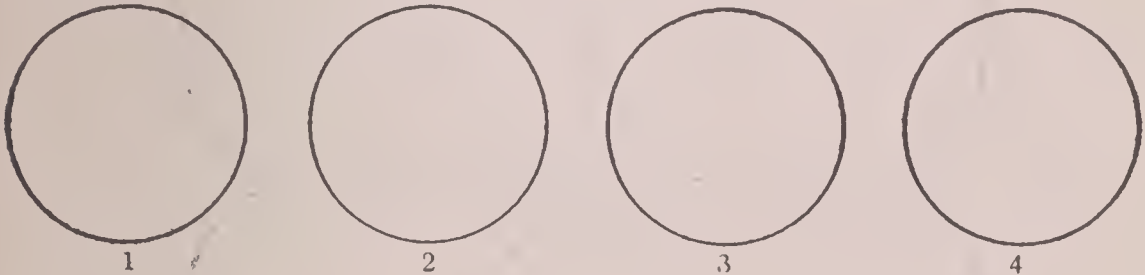
First to Fifth Years.

Given in Fig. 1, one side of a square. Draw a pattern square to correspond with this one side in size, transfer it to colored paper, cut and paste the colored one beside a square which you have just drawn on drawing paper.

Draw the one side of a square on the board, and then give these pupils this lesson.

Fifth to Tenth Years Inclusive.

Lesson XIII, Part I. Draw four views of the sphere as Figs. 1, 2, 3, 4.



LESSON XIV.

First to Fifth Years.

Draw a square on drill paper, cut it out and draw through the center a horizontal and vertical diameter. Make a smaller square of this by folding the paper twice, once along each diameter, then fold it diagonally, thus making Fig. 1.

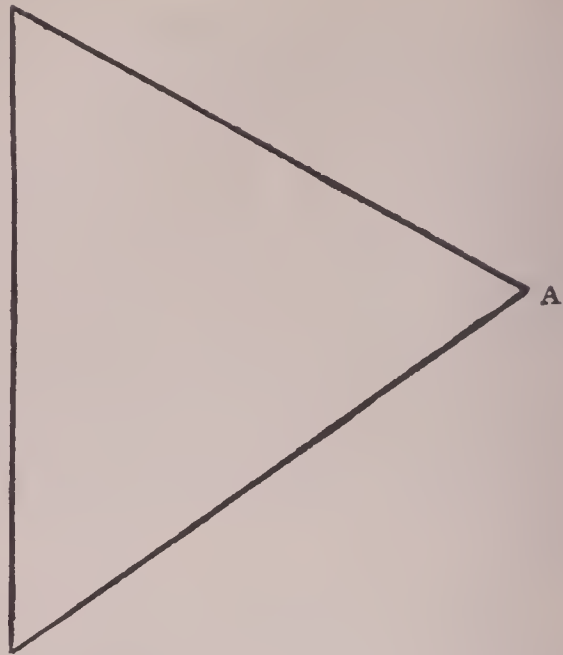


FIG. 1.

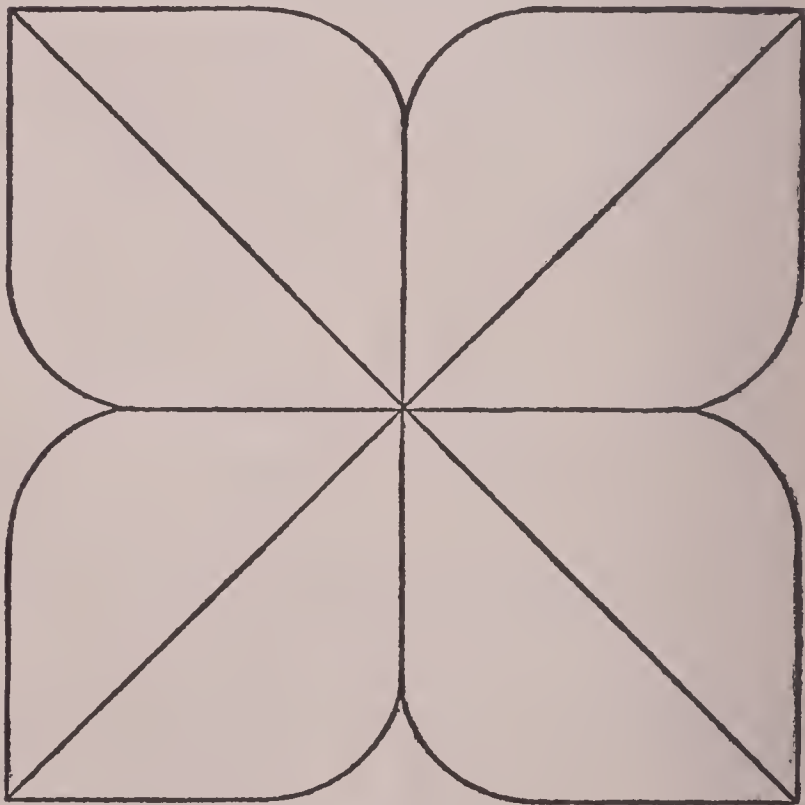


FIG. 2.

Cut the paper circularly across the corner "A." Unfold it and the shape should be the same as Fig. 2. Transfer this to colored paper

and cut and paste on a piece of drawing paper.

Fifth to Tenth Years Inclusive.

Compare the measures of the horizontal and vertical widths of several objects.

Draw a rectangle on the board and explain the relation between a square and rectangle; have pupils in these years measure and draw the same on drill paper.

LESSON XV.

First to Tenth Years Inclusive.

Clay modeling. Lesson XV, Part I.

LESSON XVI.

First to Fifth Years.

Place the cube on your desks with one face toward you and draw a square on drill paper to represent the face next to you. In this square draw a circle and color each with your colored pencils.

Fifth to Tenth Years Inclusive.

Lesson XVI, Part I. How to draw a cube below the eye with one face toward you.

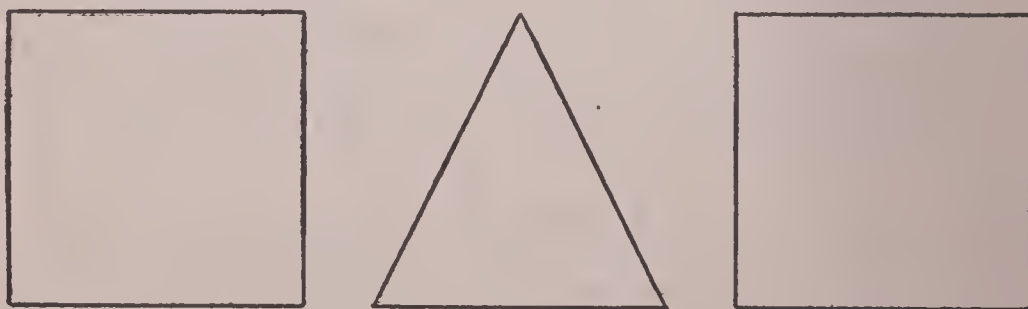
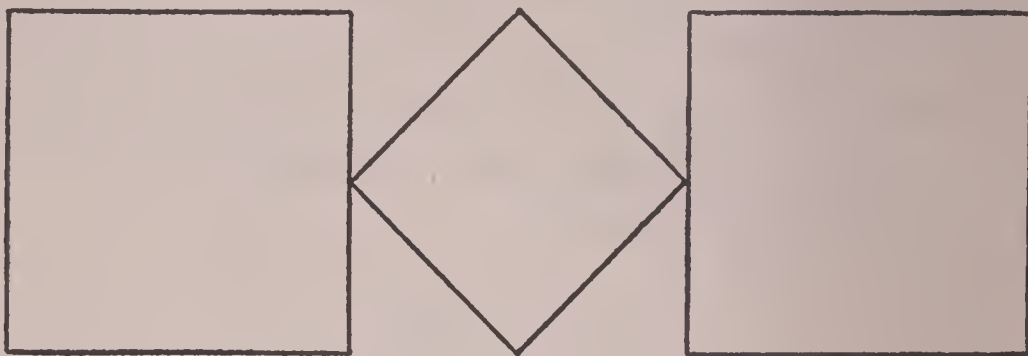
Draw both the facts and appearance of this view.

LESSON XVII.

First to Tenth Years Inclusive.

Bordering. Lesson XIV, Part I.

The following figures suggest some arrangements.



LESSON XVIII.

First to Fifth Years.

Arrange a simple lesson on the sphere, similar to Lesson XIII, Part I, for these pupils; have them draw a sphere on drawing paper.

Fifth to Tenth Years Inclusive.

Lesson XVII, Part I. How to Draw a Cube Below the Eye With One Corner Toward You.

LESSON XIX.

First to Tenth Years Inclusive.

REVIEW.

Draw some of the objects which you have had in previous lessons and explain the principle points to be learned thereby.

LESSON XX.

First to Fifth Years.

Give these pupils a simple lesson in blocking, then have them block and draw the objects similar to the following.

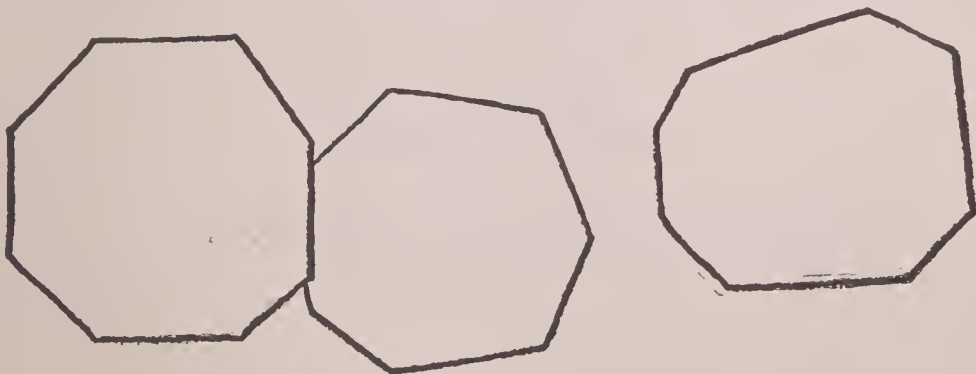


FIG. 1.

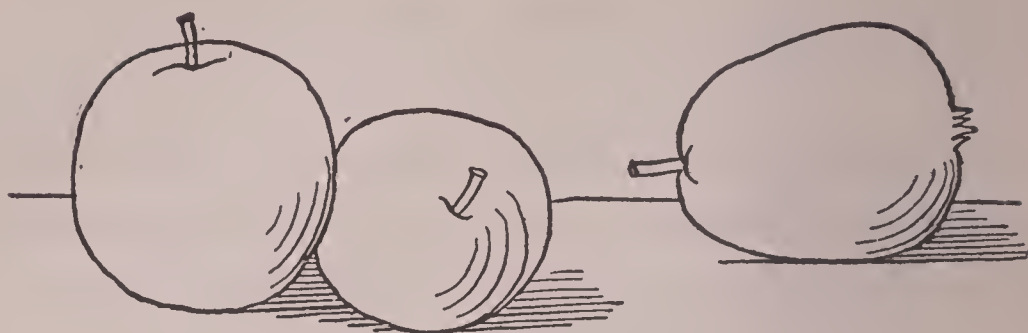


FIG. 2.

Fifth to Tenth Years Inclusive.

Block and complete drawing of two and one half apples. Have the fruit as a model.

Notice particularly the foreshortening, proportions, etc.



LESSON XXI.

PERSPECTIVE.

First to Fifth Years.

A simple lesson in perspective.

Fifth to Tenth Years Inclusive.

Lesson XVIII, Part I.

LESSON XXII.

First to Tenth Years Inclusive.

A simple lesson on the avoid and ellipsoid, also some object similar to each, as plums, etc.; draw these figures.

Fifth to Tenth Years Inclusive.

Lesson XIX, Part I.

LESSON XXIII.

First to Tenth Years Inclusive.

Lesson XX, Part I.

LESSON XXIV.

First to Tenth Years Inclusive.

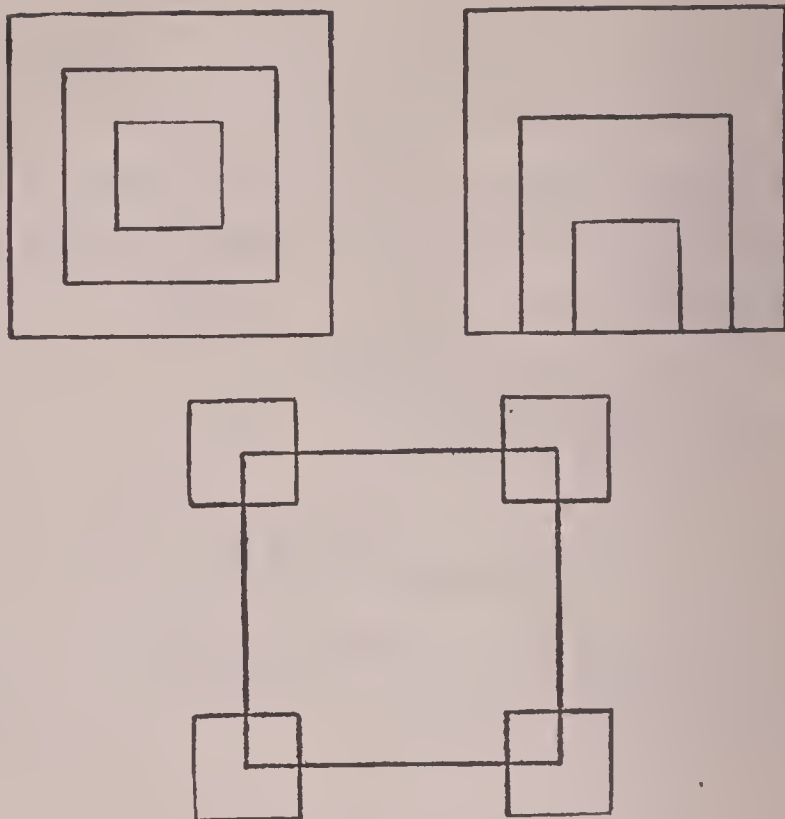
DICTATION BY THE TEACHER.

Give the pupils a suitable lesson that you have arranged, one that you think will benefit them most. This should be very instructive. It is a good plan sometimes to allow the school to suggest what it prefers to draw in these dictation lessons.

LESSON XXV.

First to third Years.

Put the following drills on the board, and have these pupils draw them on practice paper.



Draw the large square first in each figure.

Third to Fifth Years.

Give them a simple lesson on the study of the cube.

Fifth to Tenth Years Inclusive.

Lesson XX, Part I. The Pattern Cube.

LESSON XXVI.

First to Fifth Years.

Remember the name ellipse. Make points as in Fig. 1, and draw an ellipse through them; also make diameters as in Fig. 2, and draw an ellipse around them.



FIG. 1.

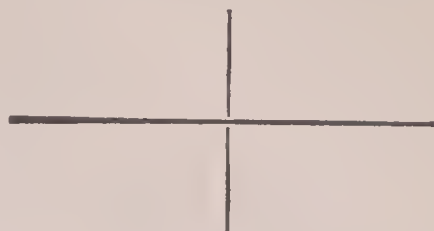


FIG. 2.

Fifth to Tenth Years Inclusive.

Lesson XXI, Part I. The Circle as to Foreshortening. Draw an ellipse.

LESSON XXVII.

First to Fifth Years.

Give the pupils in these years a simple lesson in proportion and explain as clearly as possible, by illustrations on the board, the meaning of proportion. Consider only those objects near by.

Have years from first to third place their laying sticks on their desks in the form of different sized squares, then draw these squares on drill paper proportionately.

Place two or three balls (or some similar objects) of different sizes on your desk and have years from third to fifth draw them proportionately on drill paper.

Fifth to Tenth Years.

Lesson XXII, Part I. Proportion.

LESSON XXVIII.

First to Fifth Years.

Give these pupils a short review on the principle points in drawing leaves; have them draw leaves in similar positions to the following.



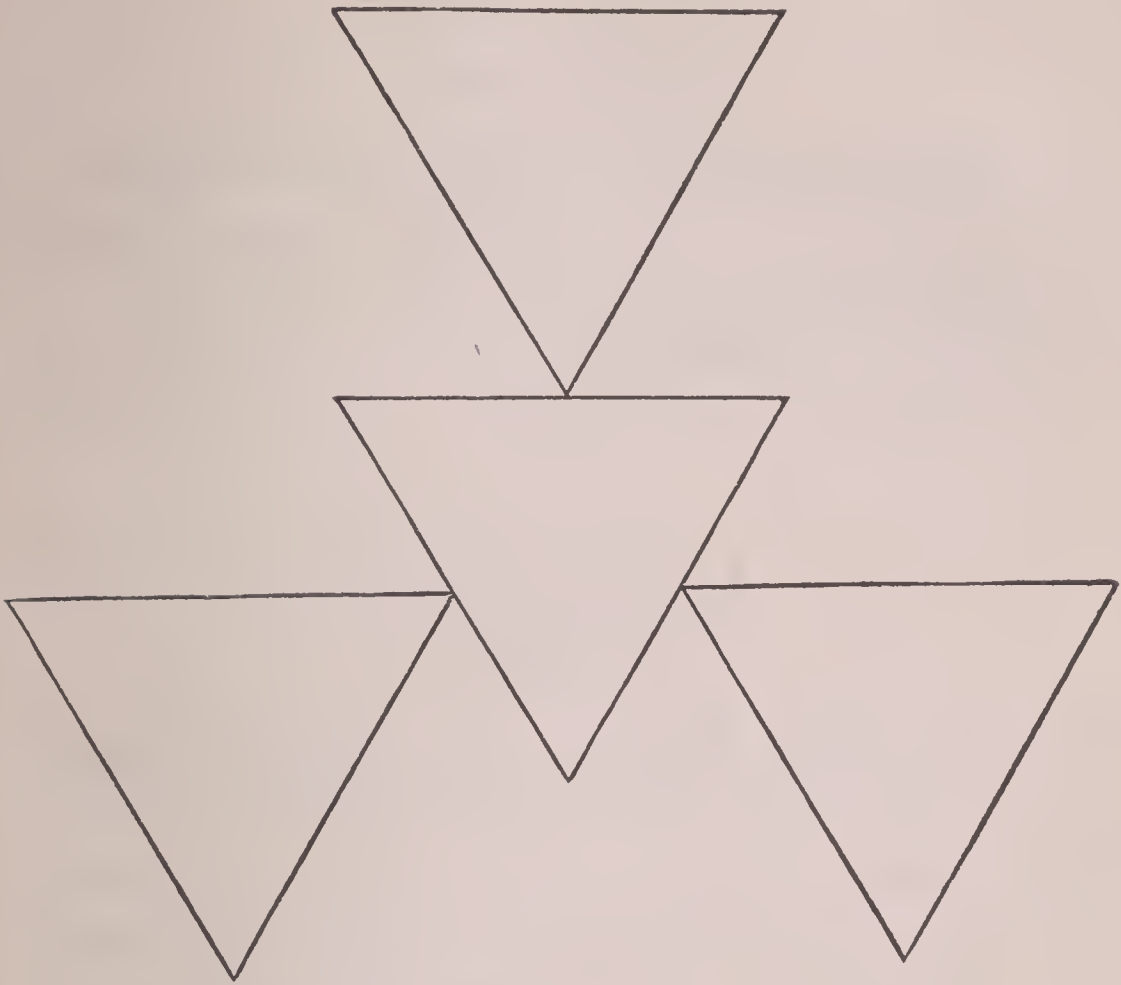
Fifth to Tenth Years Inclusive.

Lesson XXVII, Part I. Also Draw Branches of Leaves.

LESSON XXIX.

First to Fifth Years.

Explain, by illustrating on the board, the triangle. Have these pupils practice drawing triangles on drill paper after which allow them to make the following arrangements which you have put on the board.



Fifth to Tenth Years Inclusive.

Lesson XVIII, Part I. *The Triangle.*

Also draw a kite. Make the diameters of the proper proportions, then draw the kite.

LESSON XXX.

First to Tenth Years Inclusive.

REVIEW.

Give particular attention to those parts in the previous lessons which seemed difficult for the pupils.

LESSON XXXI.

First to Fifth Years.

Practice drawing ellipses on drill paper. A simple lesson on the cylinder. Draw cylinder.

Fifth to Tenth Years Inclusive.

Lesson XXIX, Part I.

LESSON XXXII.

First to Fifth Years.

Give these pupils a simple lesson in perspective as: put the drawing of a railroad on the board, and tell them that if they will stand in the center of a railroad and look in the direction that the tracks extend, they (the tracks) will appear to come together a long ways from them, etc.

Fifth to Tenth Years Inclusive.

Perspective. Lesson XXX, Part I.

LESSON XXXIII.

First to Tenth Years Inclusive.

Arrange a lesson which you think will please the pupils and also be instructive.

LESSON XXXIV.

First to Fifth years.

A SIMPLE LESSON ON THE CUBE WITH ONE CORNER TOWARD THE OBSERVER.

Place the cube on your desks in this position, then lay sticks to represent it. Draw as much as possible of this position of the cube.

Do not measure; simply notice the slant of the lines, parallel edges, etc.

Fifth to Tenth Years Inclusive.

Draw a box with the lid closed, also one with the lid open as in Figs. 1 and 2.

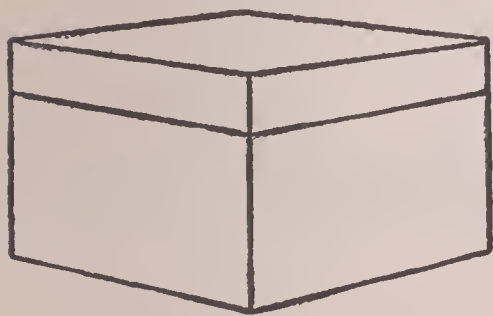


FIG. 1.

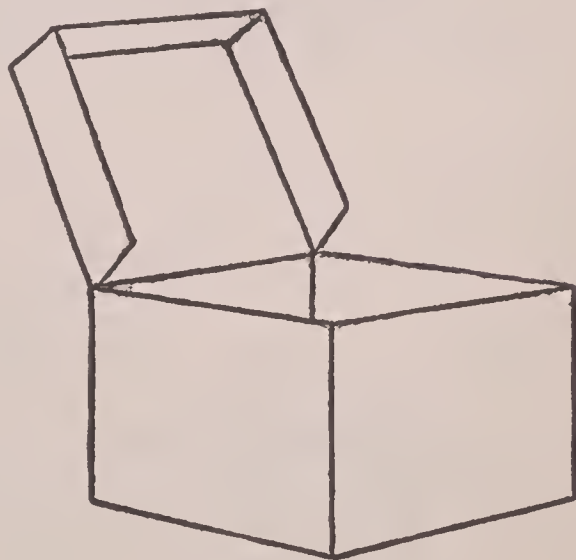


FIG. 2.

LESSON XXXV.

First to Tenth Years Inclusive.

Drill exercise. Lesson XXXI, Part I.

First to Fifth Years.

A simple lesson on a book in the position of the one in Lesson XXXII, Part I. Draw on drill paper.

Fifth to Tenth Years Inclusive.

A Book and Sphere. Lesson XXXII, Part I.

LESSON XXXVI.

First to Tenth Years Inclusive.

REVIEW.

Draw something similar to some object in any of the previous lessons.

LESSON XXXVII.

First to Fifth Years.

A simple lesson in perspective.

Fifth to Tenth Years Inclusive.

Perspective. Lesson XXXIII, Part I.

LESSON XXXVIII.

First to Fifth Years.

Give these pupils a simple lesson on the rectangle, using the blackboard freely to illustrate your meaning.

Draw a rectangle on the board, then convert it into an envelope, and have them draw the same on drill paper.

Fifth to Tenth Years.

The Rectangular Solid. Lesson XXXIV, Part I.

LESSON XXXIX.

First to Tenth Years Inclusive.

MODIFICATION OF UNITS.

Explain carefully the meaning of modification of a unit. Also show the pupils designs of carpet and wall paper or pictures of architecture if possible that have in them one form of modification of this unit to illustrate its use.

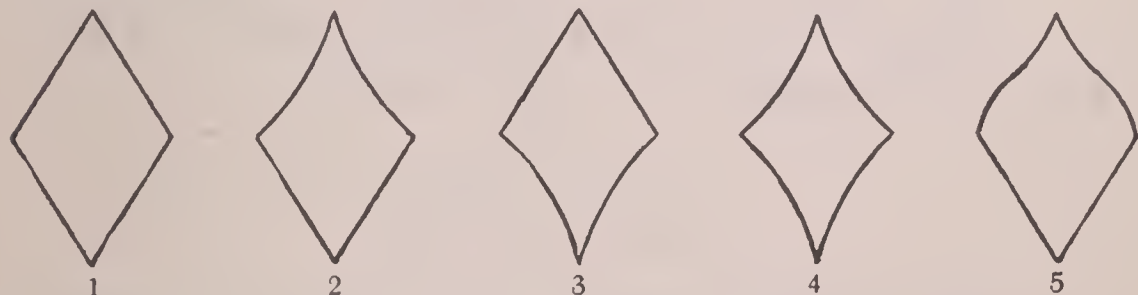


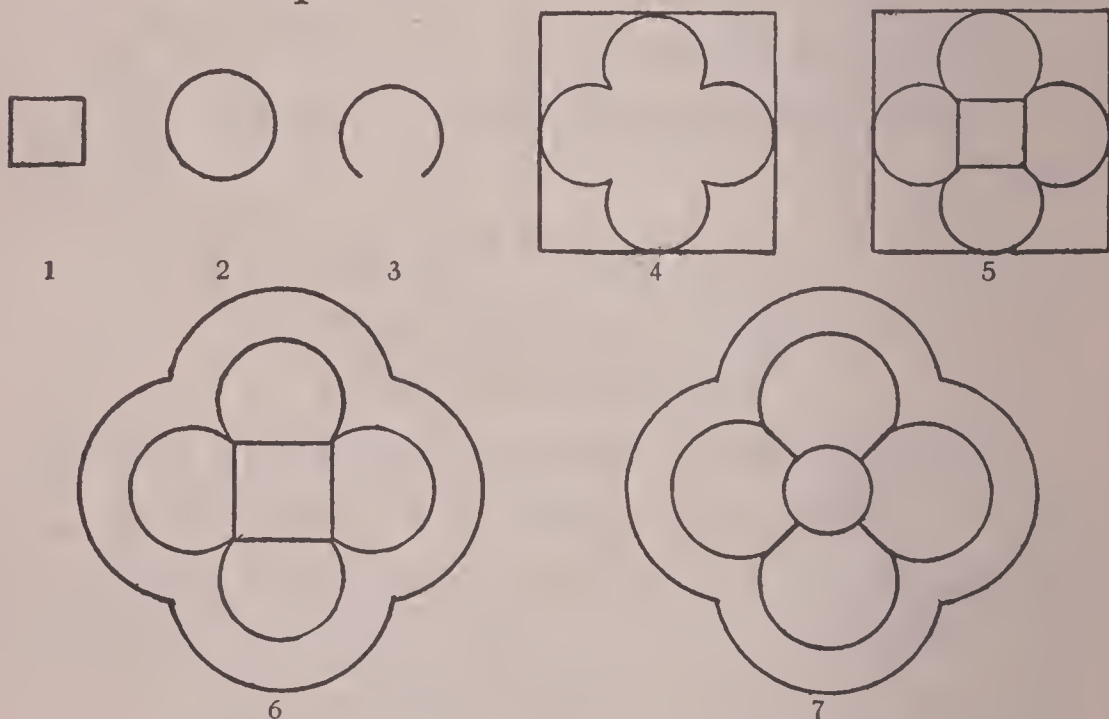
Fig. 1 is the unit; 2, 3, 4 and 5 are modifications of this unit. Find other units and their modifications.

LESSON XL.

First to Tenth Years Inclusive.

ARRANGEMENTS ABOUT A CENTER.

Make these on drawing paper. Figs. 1 and 2 are the centers and 3 is the leaf form to be used. Use either center the pupils like best. Illustrate this work on the board before the school attempts it.



Figs. 4 and 5 are the first steps; 6 and 7 are the arrangements completed.

LESSON XLI.

First to Fifth Years.

Draw circles around diameters and cylinders on drill paper, using the solid as a model.

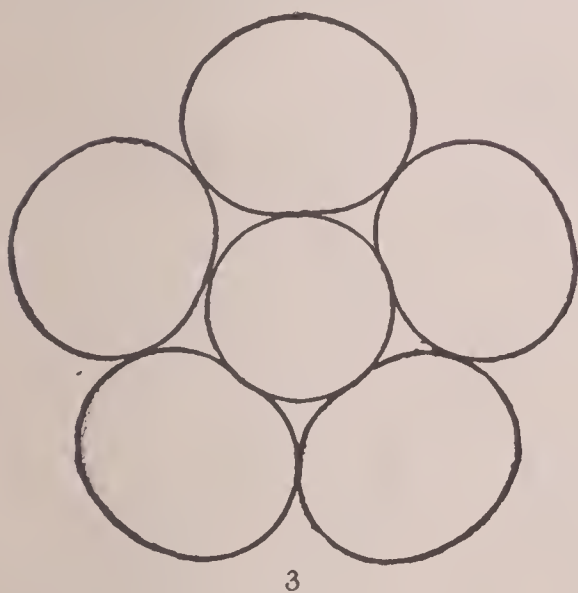
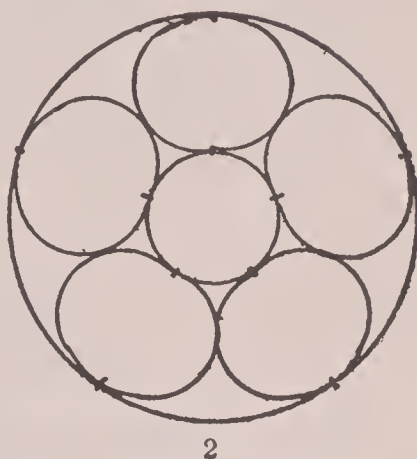
Fifth to Tenth Years Inclusive.

The Cup. Lesson XXXVI, Part I.

LESSON XLII.

First to Tenth Years Inclusive.

THE ROSETTE.



Figs. 1 and 2 are good drills leading to drawing the rosette. Put these figures on the board.

LESSON XLIII.

First to Tenth Years Inclusive.

Comparison of the cylinder and cone.

First to Fifth Years.

Drill on ellipses; draw a cone.

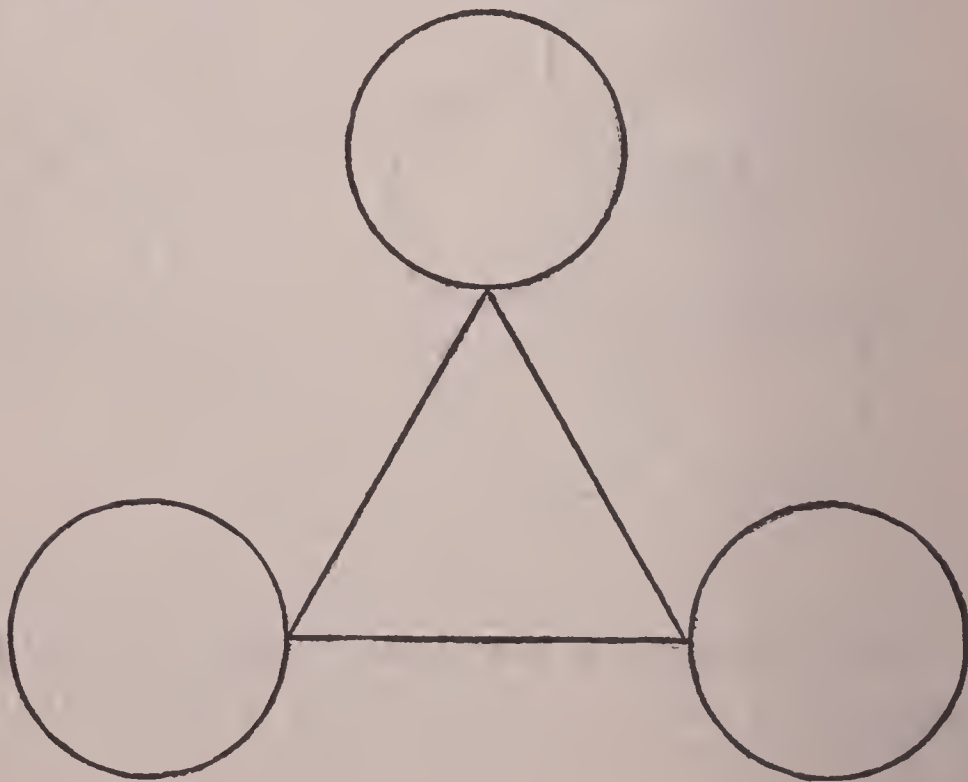
Fifth to Tenth Years Inclusive.

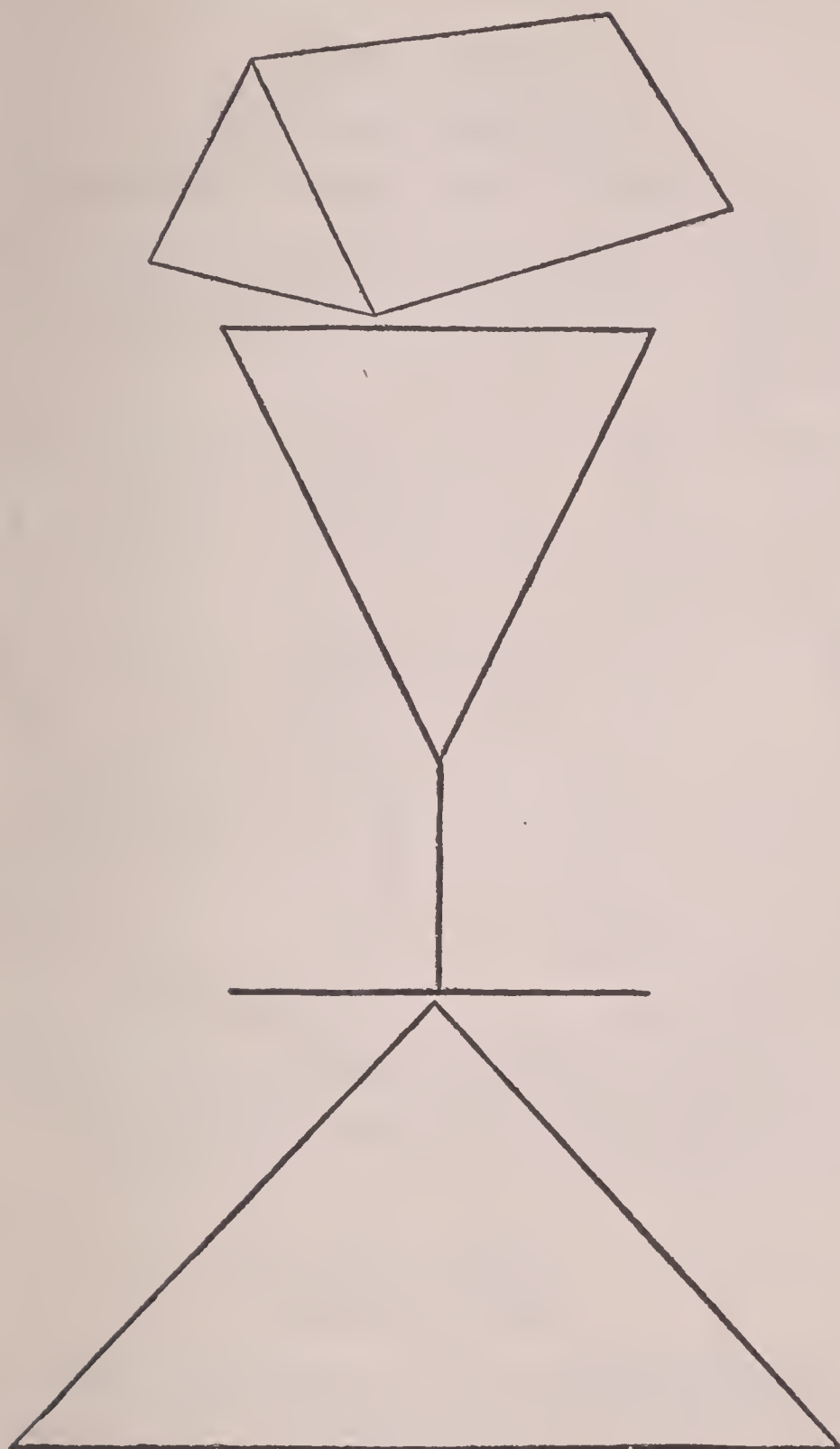
Lesson XXXVII, Part I. Study of the Cone.

LESSON XLIV.

First to Fifth Years.

Give these pupils a simple lesson on the triangular prism, also have them draw the following arrangements which have been drawn on the board.





Fifth to Tenth Years Inclusive.

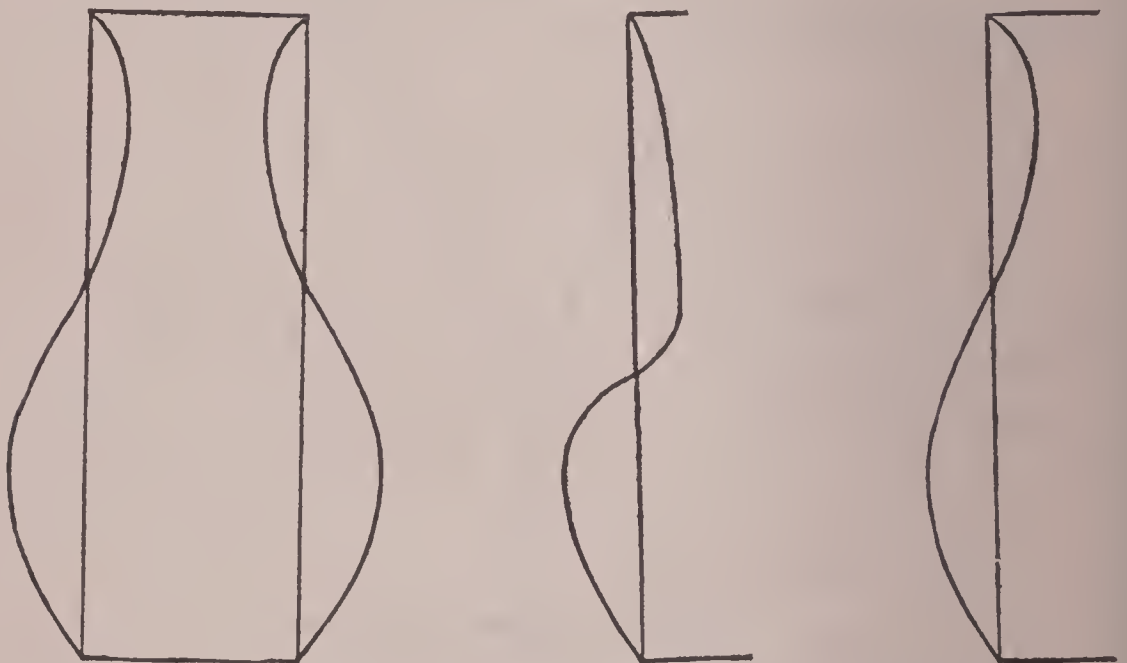
Lesson XXXVIII, Part I. The Equi-lateral
Triangular Prism.

LESSON XLV.

First to Tenth Years Inclusive.

A DRILL LEADING TO THE DRAWING OF VASES, ETC.

Explain the use of the vertical lines in these drawings. Have the pupils try to make both sides alike.



After this drill draw from the objects jugs, vases, bottles, etc., in lessons following.

LESSON XLVI.

First to Fifth Years.

A simple lesson in perspective; also a brief review of the previous lessons in perspective.

These lessons should be very simple.

Fifth to Tenth Years Inclusive.

Perspective. Lesson XXXIX, Part I.

LESSON XLVII.

First to Tenth Years Inclusive.

The Cube. Lesson XL, Part I.

LESSON XLVIII.

First to Fifth Years.

A simple lesson in perspective.

Fifth to Tenth Years Inclusive.

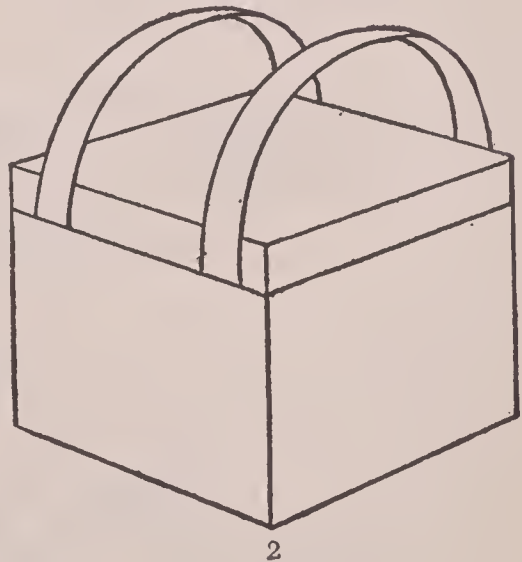
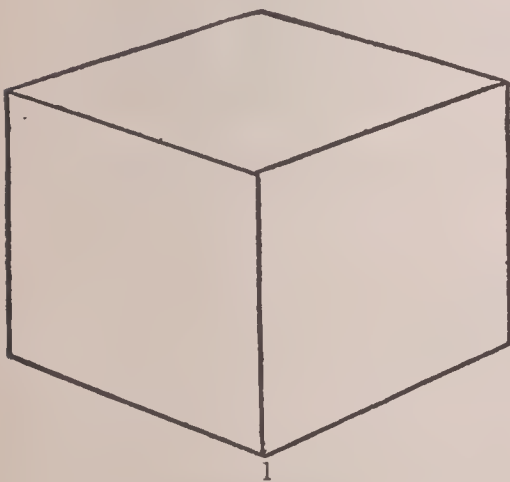
Perspective. Lesson XLI, Part I.

LESSON XLIX.

First to Fifth Years.

A simple lesson on the cube.

Draw Figs. 1 and 2 using the objects as models.



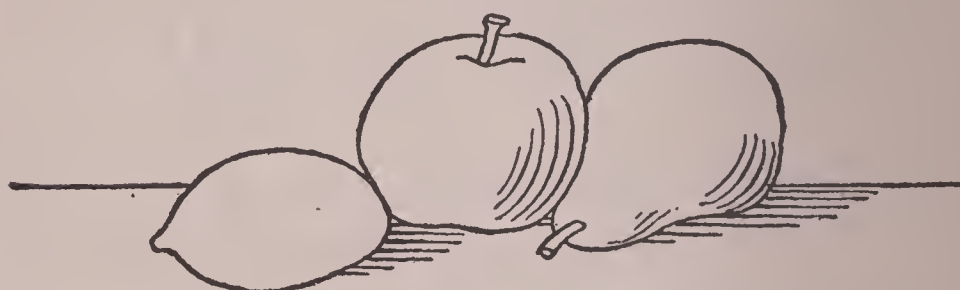
Fifth to Tenth Years Inclusive.

Two Books. Lesson XLII, Part I.

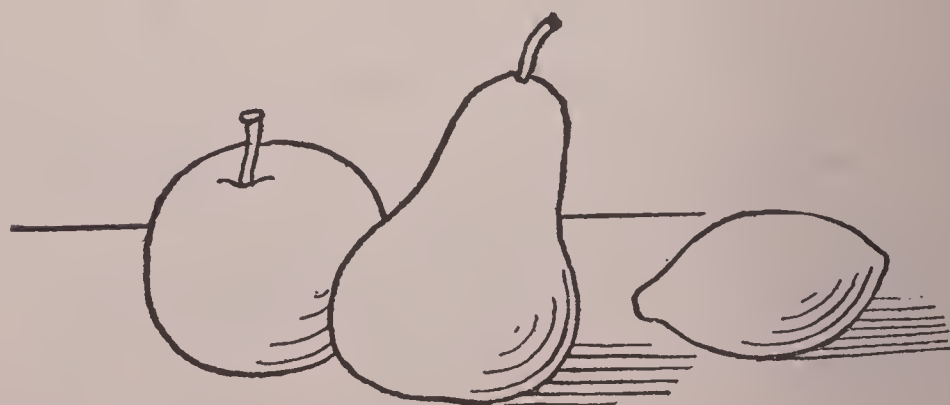
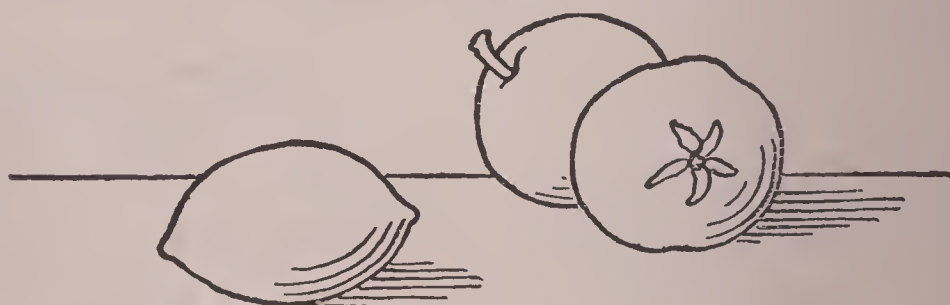
Draw on drawing paper.

LESSON L.

First to Third Years.



Third to Fifth Years.



Fifth to Tenth Years Inclusive.



Arrange these different groups of objects in a good light so that each pupil may draw the view that he sees.

What geometrical figures do these objects resemble?

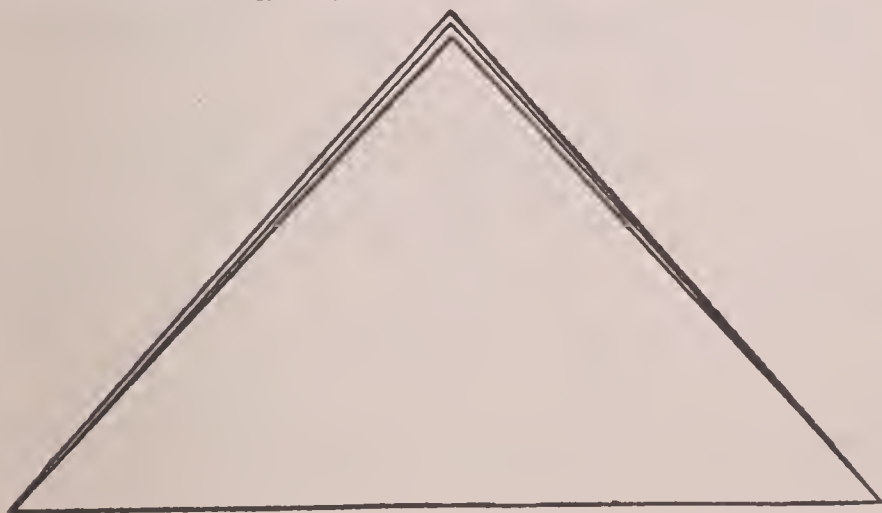
LESSON LI.

First to Fifth Years.

A simple lesson in foreshortening. Draw a book below your eye with one edge toward you.

Fifth to Tenth Years Inclusive.

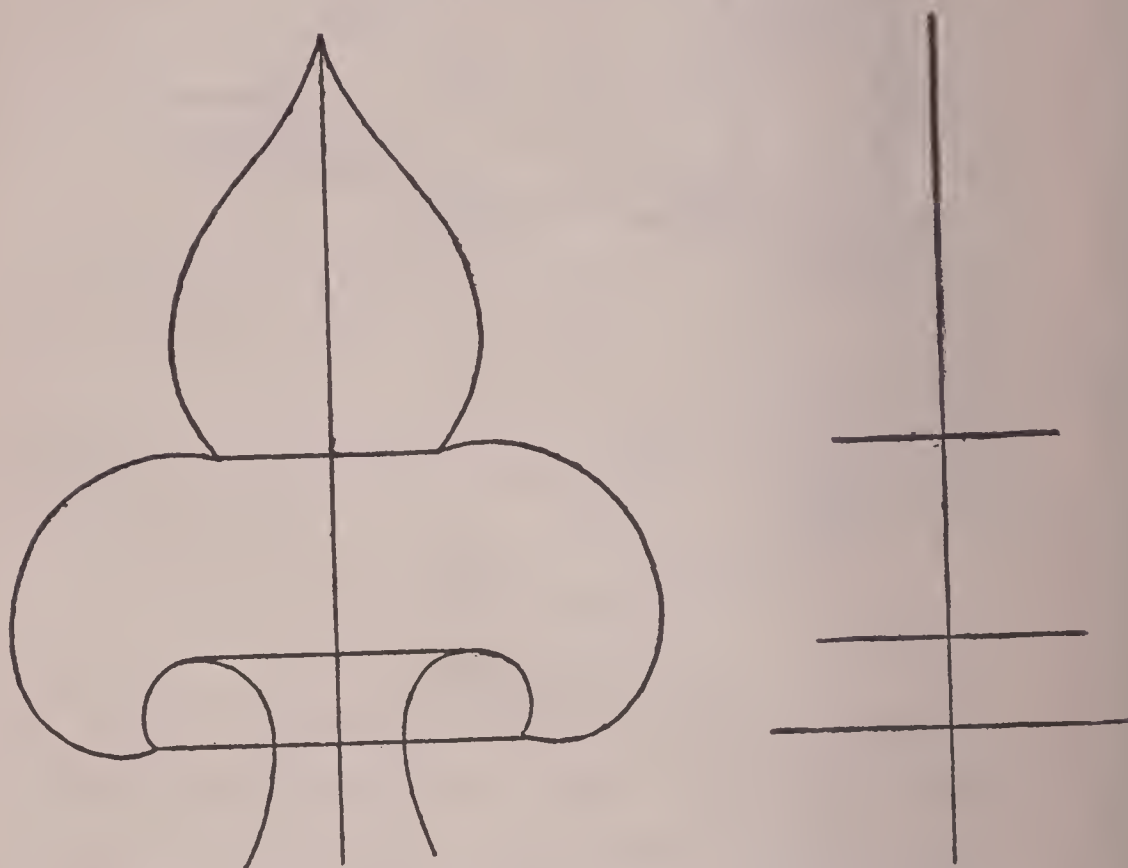
Draw a slate below your eye with one edge toward you. Give particular attention to foreshortening and proportions.



LESSON LII.

First to Tenth Years Inclusive.

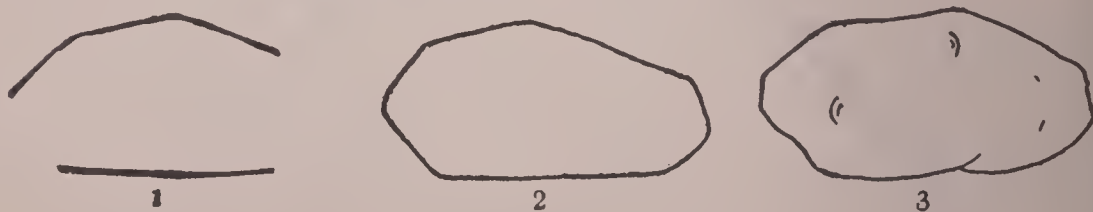
ORNAMENT FROM A COPY.

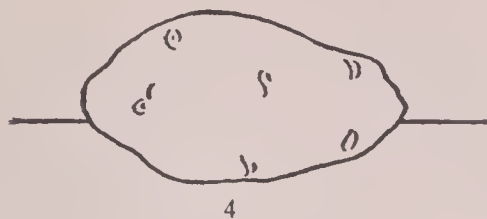


Have the pupils draw the vertical diameter and horizontal lines, then the outline. Find borders, where this figure is used in wall paper, etc. Put a drawing of these figures on the board.

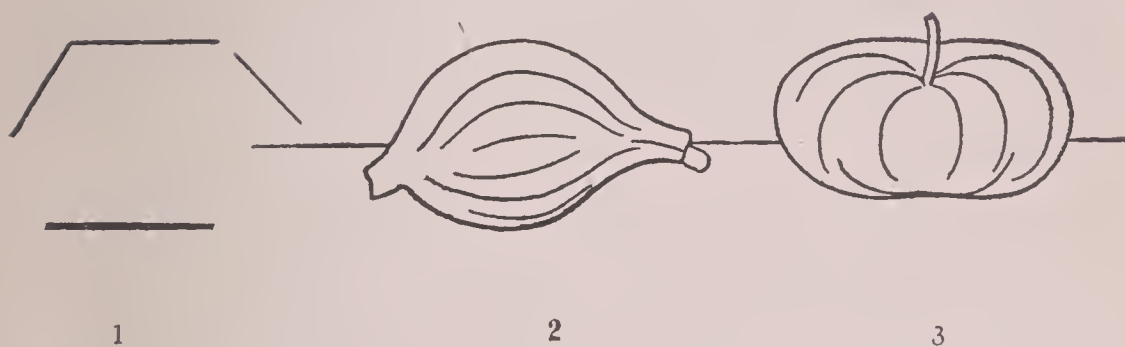
LESSON LIII.

First to Third Years.

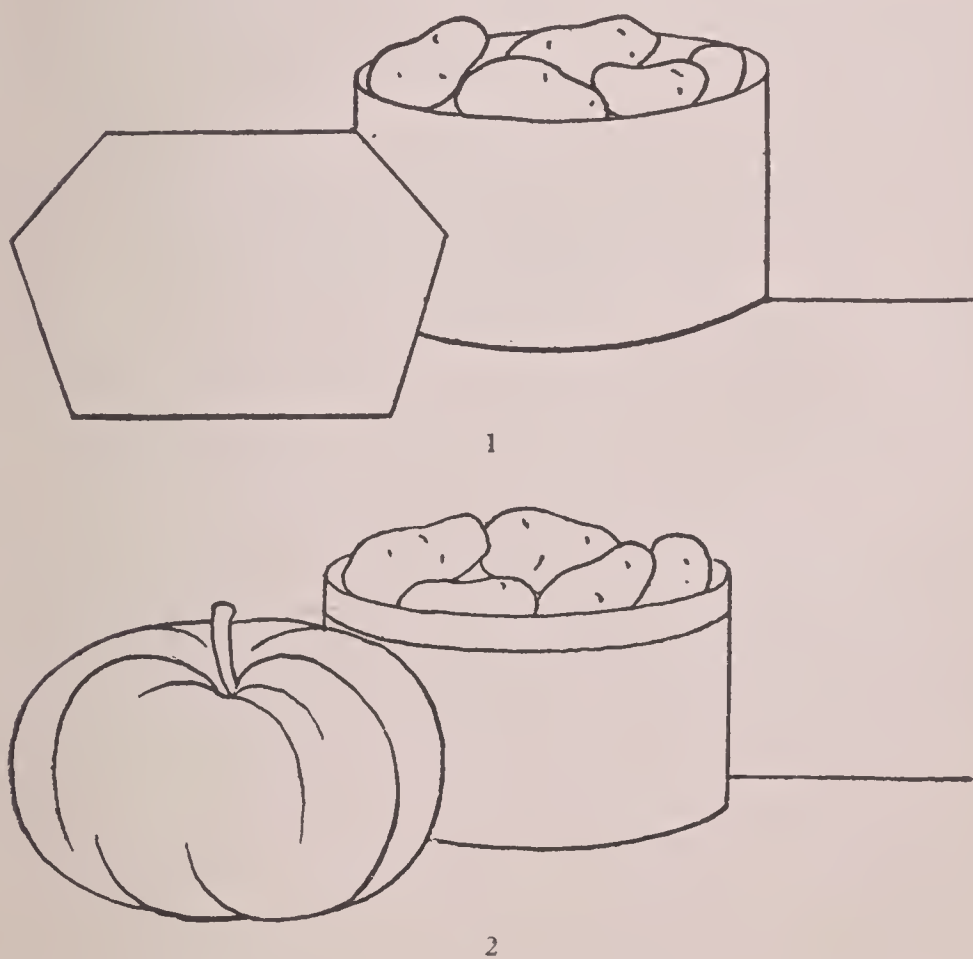




Third to Fifth Years.



Fifth to Tenth Years.



Any vegetable or fruit may be used. Place the natural object in a good light, study the shape and proportion and suggest them by blocking lines. Complete the drawing. One group should be arranged for each division of the school and pupils draw the view that each sees. What geometrical figure do these objects resemble?



BUSY WORK.

Any thing modeled from clay and colored with water colors is very interesting busy work, as vegetables, apples or any such fruit, etc., globe, rows of mountains may be modeled and colored, mountain systems, river systems, lake beds, prairies, with a few trees; in fact, almost any of the geographical forms.

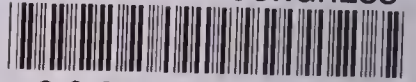
All sorts of pretty, instructive figures may be made from colored paper and pasted on white paper. These must, in most cases, represent flat objects. Any thing having depth must be made after the manner of the pattern cube.

Drawing from the objects and stick laying are always entertaining and instructive to children. Do not allow the pupils to work listlessly at any of this work if they attempt it.

A lesson on the blackboard is good drill. When drawing on the board the pupil's position should be at arm's length from and directly facing the board.



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